

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT			1. CONTRACT ID CODE J	PAGE OF PAGES 1 20
2. AMENDMENT/MODIFICATION NO. 0004	3. EFFECTIVE DATE 10-Apr-2015	4. REQUISITION/PURCHASE REQ. NO.		5. PROJECT NO.(If applicable)
6. ISSUED BY NAVFAC NORTHWEST 1101 TAUTOG CIRCLE SILVERDALE WA 98315-1101	CODE N44255	7. ADMINISTERED BY (If other than item 6) See Item 6		
8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)		X	9A. AMENDMENT OF SOLICITATION NO. N44255-15-R-6002	
		X	9B. DATED (SEE ITEM 11) 06-Feb-2015	
			10A. MOD. OF CONTRACT/ORDER NO.	
			10B. DATED (SEE ITEM 13)	
CODE	FACILITY CODE			
11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS				
<input checked="" type="checkbox"/> The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer <input checked="" type="checkbox"/> is extended, <input type="checkbox"/> is not extended. Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.				
12. ACCOUNTING AND APPROPRIATION DATA (If required)				
13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.				
A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.				
B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).				
C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:				
D. OTHER (Specify type of modification and authority)				
E. IMPORTANT: Contractor <input type="checkbox"/> is not, <input type="checkbox"/> is required to sign this document and return _____ copies to the issuing office.				
14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.) Subject: RM 09-1471 Repair Inside Machine Shop Building 431, Naval Base Kitsap, Bremerton, WA Description continues on page two.				
Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.				
15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)		
		TEL:	EMAIL:	
15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA		16C. DATE SIGNED
_____ (Signature of person authorized to sign)		BY _____ (Signature of Contracting Officer)		10-Apr-2015

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

SUMMARY OF CHANGES

SECTION SF 30 - BLOCK 14 CONTINUATION PAGE

The following have been added by full text:

AMENDMENT 0004

The following PPIs were received in response to the RFP:

PPI 0031

Factor 3.a.iii (Technical Approach to Safety) says to limit the safety narrative to one page. Attachment E (Past Performance Worksheet for Safety) paragraph C also says the safety narrative shall be limited to one page, but the last sentence of this attachment says, "Attach sheets (limited to two pages) to supply Technical Approach for Safety." Please clarify if we are allowed one or two pages of narrative for our technical approach to safety.

Response

The narrative shall be limited to one page. Revised Attachment E is provided.

PPI 0032

08440 Page 9, 10 1.5.6 1.5.6.1 What is the ATF Standoff distance South A-256?

Response

Building 431's Grids only go up to A-41. The ATFP Standoff Distance for this project is 1100 ft. on the South Face and 300 ft on the North Face.

PPI 0033

01 57 19 – 3.11.2 states that hazardous waste is to be turned into the government for disposal. Does this include toxic and hazardous materials as defined by sections 02 84 16, 02 84 33, 02 83 13, 02 82 14 and ozone depleting substances?

Response

Hazardous Waste is defined in 01 57 19.00 20, par. 1.2.6 and 40 CFR Part 260.10. Referenced sections include wastes that may not meet this definition. For example, asbestos, by itself, is not a hazardous waste. Electronic ballasts without batteries are not hazardous waste and shall be recycled; all other ballasts and all lamps are considered to be hazardous waste. Certain restroom fixtures are considered to be hazardous waste. ODS recycling requirements are found in section 01 57 19.00 20, par. 3.11.3.1. See hazardous materials removal drawings for further information.

PPI 0034

Heavy metal dust samples identify existing contamination throughout the building (reference Table 3b on pages 67 and 68 of the Limited Hazardous Materials Survey Report). The scope of work identifies

procedures for disturbance of hazardous materials contaminated dust in section 02 83 13 3.2.2.3 but does not specify decontaminating the building. Is there any requirement within this project to decontaminate the rest of building?

Response

The contract does not require decontaminating the entire building to a specified level with regard to horizontal surfaces [Other than what NAVFAC stipulated in our first response, 200µg/ft² for benches & 400µg/ft² for floors]. Cleaning visible dust and debris by HEPA vacuuming, and then wet wipe & mop the horizontal working surfaces is required.

PPI 0035

Does the government have an existing Lead Compliance Program for work activities in the building impacting lead and heavy metal contamination or any other program that would require the contractor to incorporate into their safety plan for work in the building? Reference Table 3b on pages 67 and 68 of the Limited Hazardous Materials Survey Report showing lead levels up to 19,000 micrograms per square foot.

Response

Per Spec 01 35 26 Governmental Safety Requirements Para 1.5: " In addition to the detailed requirements included in the provisions of this contract for lead work, ensure to comply with the most recent edition of USACE EM 385-1-1, and the associated federal, state, and local laws. EM 385-1-1 References OSHA 29 CFR 1926.62, construction "Lead Standard" for worker protection. Provide a "Lead Work Plan" based on the EHSI Lead-Paint Survey and the Lead Dust Survey (To include other hazardous metals that were identified). Cleanup loose paint, paint chips and dust, removing any debris to pass a visual clearance. Clean horizontal working surfaces (i.e. Benches) to 200µg of lead/sqft and 400µg/sqft on floors where initial testing shows those levels had been exceeded."

PPI 0036

Specification section 02 83 13 requires an occupant protection program to protect building occupants from exposure to lead and heavy metals. Are we to anticipate that this protection plan includes pre construction surveys including air monitoring and blood sampling of the building occupants?

Response

Conform to OSHA 29 CFR 1926.62. and monitor your own employees. Provide the results to Code 106 Safety for posting and/or notification to building occupants, specifically if the boundary samples exceed the Action Level, in which case the work controls will be reassessed to prevent occupant exposure.

PPI 0037

Specification section 02 83 13 1.7.1 requires protection of adjacent areas and restoring work to its original condition or better as determined by the Contracting Officer. Since the building is already contaminated with lead and heavy metals, can the government clarify this requirement or acknowledge the building will remain contaminated after work is complete?

Response

The contractor is not responsible for cleaning up pre-existing contamination, but shall not contribute to more than 200µg/ft² to known pre-existing levels. If exceeded the contractor will clean to pre-existing levels or levels noted/specified as part of the contract action.

PPI 0038

Specification section 02 83 13 – 3.1.1.3 requires protective clothing and equipment as specified but after the initial exposure assessment 29 CFR 1926.62 allows for downgrading based on results. 3.1.1.3 states no one will be allowed in the hazardous metals control area unless provided with protective equipment. Does the government expect all trades to wear protective clothing for the duration of work in the building due to the lead and heavy metal contamination?

Response

Establish your boundary controls. No one enters without permission and will use the same level of PPE as required by the person performing a "Trigger Task". Reduce your area of control based on the exposure of assessment. Airborne exposure at or above the Action Level is not expected from surface contamination, that is to be predicated on the air sampling results. However all building occupants should wash their hands before eating and at an established facility (lunchroom). This shall be addressed in your "Lead Work Plan".

PPI 0039

Specification section 02 83 13 – 3.2.2.1 requires an enclosure, barriers or containments for manual removal of paint with hazardous metals. Does this also apply to mechanical methods where HEPA filtered vacuums are used?

Response

29 CFR 1926.62 points out degree of controls required when performing a "Trigger Task". If the HEPA Vac is satisfactorily controlling release/exposure based on the monitoring results that is adequate control. However, you must still establish your boundary area of controlling any access.

PPI 0040

Specification section 02 83 13 – 3.2.3 requires personnel exiting hazardous metals-controlled areas to decontaminate and change into clean clothes. Due to the government identification (reference Table 3b on pages 67 and 68 of the Limited Hazardous Materials Survey Report) of heavy metal contamination throughout Building 431 is the entire building considered a hazardous metals-controlled area?

Response

No. Comply with personal hygiene practices outline in 29 CFR 1926.62.

PPI 0041

Concrete Removal & Replacement note B/S-004 indicates a required minimum saw cut depth of ¾", but not through existing reinforcement. Details C&D/S-801 appear to show a partial saw cut with a broken vertical edge below. However, typical slab details G&H/S-801 show what appear to be a full depth cut

with an isolation joint. Will full depth cuts, through existing reinforcement, be allowed at all slab replacement locations?

Response

Full depth slab cuts will be permitted.

PPI 0042

No spec is provided for metal deck. Metal Deck is shown on either side of the seismic joints per B/S-561. Please provide Spec. (Please see page 2)

Response

Specification section 05 30 00 is provided.

PPI 0044

On Sheet S-131J there is a Lockup Device at Grid intersection 18 and AA. Please clarify what type of device this should be.

Response

Refer to Amendment 0003, PPI 0022 response.

PPI 0045

Sheet G-013 shows the Limits of Construction line. Please confirm if there are any exceptions that allow the contractor to deviate and place a crane (for material handling and BRB installation) outside the limits of construction (greater than 12' from the face of the building)? If there is an exception, what are the restrictions? (#of hrs per shutdown allowed, # of shutdowns per week allowed, # of shutdowns per month allowed, etc.)

Response

The tracks on the North Side are very active and outages need to be kept to a minimum. The ones on the East and West side are not as active, but would require paths for Detoured traffic. Recommend placing the crane outriggers on the rails with a sheet of plywood or outrigger pads to avoid damage to the rail. Avoid placing outriggers close to surface utilities. In all instances, submit an Outage Request early with proposed dates and a response and possible arrangements can be made.

PPI 0046

Sheet G-013 shows Rail tracks next to building 431. Please confirm if these tracks are active.

Response

The Railroad tracks on Farragut Ave, the west side by Dry Dock 4, and the east side by Dry Dock 2 are still active, as well as the tracks that go into Door 2 of Building 431. The contractor shall be responsible for repair and inspection of any track that is disturbed.

PPI 0047

Per Section 01 14 00 - Crane Envelope - Appendix C - shows the clearance required for the Navy's Active Portal Crane. The illustration shows a set-back distance of 25' from the Crane Rail when dealing with heights of 34' and above. In addition to, it states that any item inside this crane envelope requires approval from the Lifting and Handling Director. 1) Please confirm if the Contractor can assume that approval will be granted for the basis of our bid. 2) Please clarify what the restrictions are during an approved shutdown?

Response

The Bremerton Crane Shop is aware that the portal crane track just north of B431 will need to be blocked for some time in order to complete some required work inside the normal crane envelope. Temporary approval to block that portal crane envelope in that area can be approved. Coordination of the outage scheduling is required since it the only track between Dry-docks 1-3 and 4-6. Contractor shall be responsible for any damage to the existing portal track. No permanent structures are allowed within the required crane envelope. The restrictions during a shutdown include blocking off and warning signs on each end and no damage to the tracks.

PPI 0048

Per Section 01 14 00 - Appendix A. Work Zone Restrictions state "Structural work must be completed prior to the start of work on any levels above." Please confirm if the intent is to complete the ground improvements for that specific work zone prior to completing the steel work (demo & replace steel diagonal bracing) immediate above for that specific work zone. Or is it the intent that ALL structural ground improvements for the entire job must be completed before any elevated steel can be demo'd and replaced?

Response

The intent is:

- All of the structural work in the level 1 work zones must be complete before starting work on the upper levels.
- Where a work zone has structural work occurring on multiple levels, structural work shall proceed from bottom to top.
- Where removal of existing bracing is required for installation of new bracing, the new bracing shall be installed at all levels below before removal of existing bracing.

PPI 0049

Per Section 01 14 00 - Appendix A. The Work Zone restrictions documents state "Structural work must be completed prior to start of work on any levels above." Please confirm that the contractor may demo and install all the required diagonal steel bracing (in a specified work zone" starting from the bottom and working to the top, 1 level at a time (For Example: Diagonal bracing as shown on S-246). Assuming that the contractor has done all of the following prior to the above mentioned Steel Work: taken control of a specified work zone, relocated equipment, demo'd existing slab, completed micropiles and compaction grouting, placed new concrete foundations, and installed new baseplate steel/ gussets.

Response

The diagonal bracing at level 1 on S-246 is covered in two work zones. See notes on work zone data sheets for the interrelationship between these two work zones.

Vertically, the work may proceed as proposed. Alternatively, all of the work on a given floor may be completed level by level provided that the same restrictions are maintained. For example, on S-246 the work could either proceed in one of the two bays from the bottom to the top or the work on each floor could be complete before moving to the next floor.

PPI 0050

Note 1 on L/S-541 requires braces to be designed to the AISC 341-05 steel provisions. References in the specs seem to be from AISC 341-10. The version of the design code required will affect the design level strains for determining required brace travel and overstrength factors. Please confirm the appropriate AISC 341 version.

Response

Revised sheet S-541 is provided.

PPI 0051

Note 4 on L/S-541 specifies stiffness modification factor of 1.4 for all braces. No tolerance range is provided (+/- 10% is typical). Please provide that allowable tolerance on this factor. Additionally, the stiffness modification factor of 1.4 may likely not be achievable for braces of this length. Some braces would need stiffeners of 360" or larger to get this stiffness factor which may result in undesirable strain levels and perhaps in brace performance that cannot be verified by testing. Please confirm if there will be opportunity to coordinate stiffness values consistent with braces of these lengths once project is awarded.

Response

Revised S-541 is provided to indicate acceptable ranges of KF values based on the brace size and length. The ranges provided include tolerance.

PPI 0052

BRB Specification (05 12 40) section 2.2 has different coating requirements for slip critical connections. Bolted BRBs are designed to slip resistance at the yield level of force, but are generally not considered "slip critical". Please confirm that bolted BRB connections may use Class A faying surface prep.

Response

Revised 05 12 40 is provided to delete the reference to slip critical surfaces in the specification as there is not a project requirement for these connections to be slip critical. If a BRB supplier was to elect to provide a design based on slip critical bolting, their proposed connection would need to include the provision of an appropriate faying surface.

PPI 0053

BRB Specification section 2.3.2.4 requires standard shop primer. Section 2.4.2.1 (cleaning) requires SP 6 surface prep (blast finish) which is not required for most standard shop primers and will result in considerable cost increases. Please confirm if SP 3 cleaning can be used.

Response

Revised 05 12 40 is provided to call for SSPC SP 3 surface preparation where the manufacturer's standard primer will be used. Revised 05 12 40 also clarifies that surface preparation for surfaces that are to receive high-performance coatings shall be in conformance with 09 96 00.

PPI 0054

General notes on S-001 indicate "Structural steel and connections, including plates and other steel items embedded in concrete, which are exposed to weather, or not to be painted shall be hot-dipped galvanized after fabrication..." Please confirm this not applies to buckling-restrained brace elements and that buckling-restrained braces and their connections exposed to weather are required to be hot-dipped galvanized.

Response

Buckling Restrained Braces which are exposed to weather are required to receive a high-performance coating. As a result, galvanizing is not required. See updated specification section 05 12 40.

PPI 0055

Please confirm that the Navy will be considered the generator of any existing hazardous materials that require abatement and disposal.

Response

The Washington Department of Ecology considers the Navy and Contractor to be co-generators of hazardous waste. The Navy will sign manifests, which will be completed using the station's EPA ID number (see 01 57 19.00 20, paragraph 3.3.2.1 and 01 57 19.01 20, par. 3.1.8.2).

PPI 0056

Due to the extensive amount of structural upgrades in some of the areas identified in the Q Sheets, it appears that more than 90 days will be required to execute the work. Will the 90 day duration for each zone be negotiable after award while developing the phasing plan?

If 90 days remains the maximum duration for each activity, will double shifts be allowed?

Response

The 90 day duration is preferred but negotiable. Work outside of ordinary working hours may be applied for. Submit phasing plan that will complete work by the end date in Spec 01 14 00.

2. This amendment hereby incorporates various changes to the elevator specification. Revised Section 14 21 00.00 20 is provided.

3. Summary of revised documents:

Revised SF 1442 (with updated proposal due date)
Section 00100, Attachment E
Section 05 12 40
Section 05 30 00
Section 14 21 00.00 20
Drawing S-541

4. All other terms and conditions remain unchanged. The proposal due date is extended to April 23 at 2pm local time. Offerors are reminded to acknowledge receipt of this amendment when submitting proposals in accordance with the RFP instructions.

SECTION 00010 - SOLICITATION CONTRACT FORM

The required response date/time has changed from 17-Apr-2015 02:00 PM to 23-Apr-2015 02:00 PM.

SECTION 00100 - BIDDING SCHEDULE/INSTRUCTIONS TO BIDDERS

The following have been modified:

SECTION 00100

- 1. Pre-Proposal Inquiries.** Offerors who determine that the technical and/or contractual requirements of this RFP require clarification(s) in order to permit submittal of a responsive proposal shall submit all questions in writing. The pre-proposal inquiry format is provided in Section 00100 **Attachment A**, Pre Proposal Inquiry Form. Pre-Proposal Inquiries shall be submitted via email to andrew.e.hart@navy.mil. Pre-proposal inquiries will be accepted **up to March 25, 2015**
- 2. Solicitation Information on NECO Website.** The solicitation and all amendments will be available for viewing and downloading at <https://www.neco.navy.mil> and www.fbo.gov upon issuance. Prospective Offerors must register on the NECO website. This is the only method of distribution for the solicitation and amendments. It is the OFFEROR'S RESPONSIBILITY TO CHECK THE NECO AND/OR FBO WEBSITES PERIODICALLY FOR ANY AMENDMENTS ISSUED TO THE SOLICITATION. The Plan Holders List is available at the NECO website.
- 3. Proposal Format and Due Date.** Proposals submitted in response to this solicitation shall be formatted as follows and furnished as stated herein:

3.1 Proposal Due Date, Submission Instructions, and Format. Offerors shall submit proposals in hard copy as follows:

Offerors shall affix their names and return addresses to the upper left corner of the proposal packages. Each package shall include the solicitation number and clearly identify the contents (i.e., "N44255-15-R-6002 ~ PROPOSAL – (Insert Company Name)"), and must be sealed.

Submit proposals to:

Naval Facilities Engineering Command, Northwest

**Attn: Mr. Andy Hart
1101 Tautog Circle, Suite 313
Silverdale, WA 98315-1101**

If the Offeror is mailing its proposal, mail to the address above. It is the Offeror's responsibility to ensure the package is delivered prior to the time specified. If the Offeror has access to Naval Base Kitsap-Bangor and is hand delivering its proposal to NAVFAC Northwest building 1101, **please call Andy Hart at (360) 396-1861** to make arrangements prior to your arrival, to be met at the lobby. Contractors shall not arrive at the building unannounced. **PLEASE NOTE:** The address listed above is within a controlled area (badge access). Allow yourself ample time for parking and security delays.

For Offerors who are hand-delivering its proposal and have not made prior arrangements, a NAVFAC Northwest employee will be at Pass & ID, Building 1033, Naval Base Kitsap-Bangor, one hour prior to the proposal submittal deadline, and will remain there until the proposal submittal deadline.

Whenever required by the factors, use the factor mandated attachments. For narratives aside from the required forms, the paper dimension shall be 8 ½ x 11". The font size shall be no smaller than 11 pitch. Each copy of the proposal shall be securely fastened/ bound. Tab and label all sections and attachments. Provide a table of contents. For recycling purposes, a soft cover or title sheet is sufficient.

- Technical Proposal: one (1) original with original signature and date, two (2) additional hardcopies copies, and one (1) copy on CD, of Factors 1, 2, 3, 4 and 5.
- Price Proposal: one (1) original with original signature and date, one (1) additional hardcopy.
- The original proposals shall be identified as "Original" on the cover.

CLOSING DATE AND LATE SUBMISSIONS. The closing date and time for receipt of Proposals shall be as follows:

Proposals shall be received no later than 2 p.m. local time on April 23, 2015.

3.2 A cover letter shall accompany the technical and price proposals and shall include:

1. The solicitation number;
2. The names, addresses, telephone and facsimile numbers, and e-mail address of the Offeror;
3. Names, titles, phone numbers, facsimiles numbers, and e-mail addresses of persons authorized to negotiate on the Offeror's behalf with the Government in connection with this solicitation, and;
4. Name, title, and signature of person authorized to sign the proposal;
5. DUNS # as required by FAR 52.204-6;
6. Tax ID Number; and
7. Acknowledgement of all amendments.

4. Basis of Award

1. The Government reserves the right to eliminate from consideration for award any or all offers at any time prior to award of the contract; to negotiate with Offerors in the competitive range; and to award the contract to the Offeror submitting the proposal determined to represent the best value—the proposal most advantageous to the Government, price and other factors considered..
2. As stated in the solicitation, the Government intends to evaluate proposals and award a contract without discussions with Offerors (except clarifications as described in FAR 15.306(a)). The Government reserves the right to conduct discussions if the Contracting Officer later determines them to be necessary. In addition, if the Contracting Officer determines that the number of proposals that would otherwise be in the competitive range exceeds the number at which an efficient competition can be conducted, the Contracting Officer may limit the number of proposals in the competitive range to the greatest number that will permit an efficient competition among the most highly rated proposals.

3. The tradeoff process is selected as appropriate for this acquisition. The Government considers it to be in its best interest to allow consideration of award to other than the lowest priced offeror or other than the highest technically rated offeror.

4. All technical factors when combined are approximately equal in importance to the performance confidence assessment (past performance) rating; and all technical factors and the performance confidence assessment (past performance) rating, when combined are approximately equal to price.

4.1 Evaluation Factors for Award

1. The solicitation requires the evaluation of price and the following non-price factors:

- Factor 1 – Experience
- Factor 2 – Past Performance
- Factor 3 – Safety
- Factor 4 – Technical Solution
- Factor 5 – Small Business Utilization

The distinction between experience and past performance is that experience pertains to the volume of work completed by a contractor that are comparable to the types of work described under the definition of recent, relevant projects, in terms of size, scope, and complexity. Past performance pertains to both the relevance of recent efforts and how well a contractor has performed on the contracts.

2. The relative order of importance of the non-price evaluation factors:

The relative order of importance of the non-price evaluation factors is that technical Factors 1, 3, 4 and 5 are approximately equal to each other and when combined are approximately equal in importance to the performance confidence assessment (past performance) Factor 2. The combined non-price factors are approximately equal to price.

The importance of price will increase if the Offerors' non-price proposals are considered essentially equal in terms of overall quality, or if price is so high as to significantly diminish the value of a non-price proposal's superiority to the Government. Award will be made to the responsible Offeror whose offer conforms to the solicitation and represents the best value to the Government, price and non-price factors considered.

4.2 Evaluation:

1. The price proposal shall be separate from the technical proposals.
2. Firms must demonstrate that they possess the proven competence and experience to perform the subject solicitation.
3. While the Government may elect to consider data obtained from other sources, the burden of providing detailed, current, accurate, and complete past performance, experience, safety, and management information rests with the Offeror.

4.3 Proposal Submittal Requirements and Basis of Evaluation for Each Factor:

1. Basis of Evaluation and Submittal Requirements for Each Factor.

a. Price:

(1) Submittal Requirements:

- (a) Cover letter in accordance with FAR 52.215-1(c)(2), including DUNS number;
- (b) Standard Form 1442 (Solicitation, Offer, and Award) – Blocks 14 through 20c completed;

- (c) Complete Representations and Certifications in the RFP; including the supplemental certifications included in Section 00600, and ensure SAM is updated or current;
- (d) Completed Section 00010, Attachment B, Schedule of Prices for CLINs 0001 -0002 shall be the entire work complete and in accordance with the solicitation; and
- (e) Bid Bond in accordance with FAR 52.228-1; and
- (f) Acknowledgement of all amendments.

(2) Basis of Evaluation:

The Government will evaluate price based on the total price. Total price consists of CLINs 0001 and 0002. Analysis will be performed by one or more of the following techniques to ensure a fair and reasonable price:

- (a) Comparison of proposed prices received in response to the RFP;
- (b) Comparison of proposed prices with the Independent Government Cost Estimate;
- (c) Comparison of proposed prices with available historical information; and
- (d) Comparison of market survey results.

Evaluation of the price proposal will determine the reasonableness of the Offeror's proposal in accordance with FAR 15.404. The total evaluated price will determine the Offeror's comprehension of the requirements of the RFP and the degree to which the proposed price accurately reflects proposed performance. A price found to be either unreasonably high or unrealistically low in relation to the proposed work may negatively impact the Offeror's ranking.

The Bid Bond will be evaluated for accuracy and completeness in accordance with FAR 28.101.

Representations and Certifications will be reviewed in SAM to ensure they are complete.

CLIN 0002 has a statutory cost limitation of \$750,000.

b. Technical Factors:

(1) Factor 1 – Experience

(a) Solicitation Submittal Requirements:

The Offeror shall submit the following information:

Submit a minimum of two (2) and a maximum of five (5) construction projects for the Offeror that best demonstrates your experience on relevant projects that are similar in size, scope, and complexity to the RFP. Any projects submitted in excess of the five (5) will not be considered. For purposes of this evaluation, a relevant project is further defined as:

Size: See dollar values as specified under Scope.

Scope:

- 1) Renovation of large scale military or commercial facilities, including architectural, mechanical and electrical systems with a minimum project cost of \$20,000,000 and 100,000 square feet
- 2) Major structural steel retrofits to meet current seismic standards with a minimum project cost of \$20,000,000 and 100,000 square feet
- 3) HAZMAT remediation including Polychlorinated Biphenyls (PCBs) with a minimum remediation cost of \$200,000.

Complexity: Construction within controlled industrial area (CIA) locations and/ or similar heightened security areas

i. Projects submitted for the Offeror shall be substantially complete within the past seven (7) years of the date of issuance of this RFP.

ii. A project is defined as a construction project performed under a single task order or contract. For multiple award and indefinite delivery/indefinite quantity type contracts, the contract as a whole shall not be submitted as a project for evaluation; rather Offerors shall submit the work performed under a task order as a project.

iii. The attached Construction Experience Project Data Sheet (Attachment C-DBB) is MANDATORY and SHALL be used to submit project information. Except as specifically requested, the Government will not consider information submitted in addition to this form. Individual blocks on this form may be expanded; however, total length for each project data sheet shall not exceed one (1) double-sided page (or two (2) single-sided pages).

iv. For all submitted projects, the description of the project shall clearly describe the scope of work performed and the relevancy to the project requirements of this RFP (i.e., unique features, area, construction methods).

v. If the Offeror is a Joint Venture (JV), relevant project experience should be submitted for projects completed by the Joint Venture entity or the Joint Venture partners. Offerors are still limited to a total of five (5) projects combined. Any projects submitted in excess of the five (5) will not be considered. If the Offeror is a joint venture with no combined experience, at least one project from each member shall be submitted.

vi. The Offeror may submit relevant experience from a subcontractor or any other entity they plan to use that will perform major or critical aspects of the requirement to demonstrate construction experience under this evaluation factor. A minimum of two projects must be submitted by the Offeror (matching the DUNS number on the Cover Letter).

vii. If an Offeror is utilizing experience as described in items v and vi, information of JV partner, subcontractor, or any other entity (name, DUNS, and/or address is not exactly as stated on the Cover Letter) they plan to use that will perform major or critical aspects of the requirement, the proposal shall include the following information in Box 10 of Attachment C:

- The proposal shall clearly demonstrate that the JV partner, subcontractor, or any other entity (name, DUNS, and/or address is not exactly as stated on the Cover Letter) will have meaningful involvement in the performance of the contract in order for the information of the JV partner, subcontractor, or any other entity to be considered.

-The proposal shall state specific commitments of technical resources (e.g. personnel, equipment) that the JV partner, subcontractor, or any other entity (name, DUNS, and/or address is not exactly as stated on the Cover Letter) commit to the performance of this contract. In particular, the proposal will clearly state the specific commitments of resources of the JV partner, subcontractor, or any other entity (name, DUNS, and/or address is not exactly as stated on the Cover Letter) member that will be located at the worksites and company offices in the city/area of the project.

-The proposal shall also describe specific roles of the JV partner, subcontractor, or any other entity (name, DUNS, and/or address is not exactly as stated on the Cover Letter) in terms of the work it will either self-perform or manage on behalf of the Offeror in performance of the contract.

-In addition to the narrative, the Offeror shall submit a signed copy of a JV agreement, partnership agreement, teaming agreement, approved mentor protégé agreement(MPA), or letter of commitment for each member of the Offeror's team identified above (e.g., joint

venture member, partner, team member, subcontractor, parent company, sibling company, subsidiary, or other affiliated company, etc.).

-Failure to comply with these requirements will result in the project being considered not relevant and may result in lower ratings.

(b) Basis of Evaluation:

The basis of evaluation will include the Offeror's demonstrated experience and depth of experience in performing relevant construction projects as defined in the solicitation submittal requirements. The assessment of the Offeror's relevant experience will be used as a means of evaluating the capability of the Offeror to successfully meet the requirements of the RFP. The Government will only review up to five (5) construction projects. Any projects submitted in excess of the five (5) will not be considered.

Every project shall meet at least one scope element, and the corresponding minimum size (i.e. dollar value). Each of the scope and complexity elements must be demonstrated on at least one project. Failure to meet all of the stated criteria will result in lower ratings.

Higher ratings may be given if size, scope (all scope elements), and complexity are demonstrated in a single relevant project.

Higher ratings may be given for relevant projects that demonstrate experience performing construction activities in an occupied operational facility.

Higher ratings may be given if a single scope element is demonstrated on more than two relevant projects.

Higher ratings may be given for relevant projects that demonstrate renovation of high bay facilities including architectural, mechanical and electrical systems. A high bay facility is considered an open area of at least three stories and 50,000 square feet.

(2) Factor 2 – Past Performance:

(a) Solicitation Submittal Requirements:

If a completed Construction Contractor Appraisal Support System (CCASS) evaluation is available, it shall be submitted with the proposal for each project included in Factor 1 Experience. If there is not a completed CCASS evaluation then submit Past Performance Questionnaires (Attachment D) for each project included in Factor 2 for both Construction Experience in the proposal. Offerors shall not incorporate by reference into their proposal PPQs previously submitted for other RFPs. However, this does not preclude the Government from utilizing previously submitted PPQ information in the past performance evaluation. If the Offeror is unable to obtain a completed PPQ from a client for a project(s) before proposal closing date, the Offeror shall complete and submit with the proposal the first page of the PPQ, which will provide contract and client information for the respective project(s). The Government may make reasonable attempts to contact the client noted for that project(s) to obtain the PPQ information. However, Offerors shall follow-up with clients/references to help ensure timely submittal of questionnaires. If the client requests, questionnaires may be submitted directly to the Government's point of contact, Mr. Andy Hart, andrew.e.hart@navy.mil.

Offerors may provide any information on problems encountered and the corrective actions taken on projects submitted under Factor 1 – Experience. Offerors may also address any adverse past performance issues. Explanations shall not exceed two (2) double-sided pages (or four (4) single-sided pages) in total.

The Government reserves the right to contact references for verification or additional information. The Government's inability to contact any of the Offeror's references or the references unwillingness to provide the information requested may affect the Government's evaluation of this factor.

Performance award or additional information submitted will not be considered.

(b) Basis of Evaluation:

This evaluation focuses on how well the Offeror performed on the relevant projects submitted under Factor 1 – Experience and past performance on other projects currently documented in known sources. More emphasis will be placed on more relevant projects. In addition to the above, the Government reserves the right to obtain information for use in the evaluation of past performance from any and all sources including sources outside of the Government. Other sources may include, but are not limited to, past performance information retrieved through the Past Performance Information Retrieval System (PPIRS) using all CAGE/DUNS numbers of Contractors who are part of a partnership or joint venture identified in the Offeror's proposal, inquiries of owner representative(s), Federal Awardee Performance and Integrity Information System (FAPIIS), Electronic Subcontract Reporting System (eSRS), and any other known sources not provided by the Offeror.

The Government will consider the currency and relevance of the information, the source of the information, context of the data, and general trends in the Contractor's performance. This evaluation is separate and distinct from the Contracting Officer's responsibility determination. The assessment of the Offeror's past performance will be used as a means of evaluating the Offeror's probability to successfully meet the requirements of the RFP.

Offerors lacking relevant past performance history will not be evaluated favorably or unfavorably in past performance and will receive an Unknown Confidence rating.

(3) Factor 3 – Safety

(a) Submittal Requirements:

The Offeror shall submit the Past Performance Worksheet for Safety (Attachment E). The following data shall be completed on, or attached to the worksheet: (For a partnership or joint venture, the following submittal requirements are required for each contractor who is part of the partnership or joint venture; however, only one safety narrative is required. EMR and DART Rates shall not be submitted for subcontractors.)

i. OSHA Total Recordable Case (TRC) Rate:

For the five (5) [2013, 2012, 2011, 2010, 2009] previous complete calendar years, submit your OSHA Total Recordable Case (TRC) Rate, as defined by the U.S. Department of Labor, Occupational Safety and Health Administration. If you cannot submit an OSHA TRC Rate, affirmatively state so, and explain why. Any extenuating circumstances that affected the OSHA TRC Rate data should be addressed as part of this element. OSHA TRC rates above 4.0, in any of the previous five years, will be considered UNACCEPTABLE, unless an adequate explanation is provided to address the extenuating circumstances that affected the rate.

ii. OSHA Days Away from Work, Restricted Duty, or Job Transfer (DART) Rate:

For the five (5) [2013, 2012, 2011, 2010, 2009] previous complete calendar years, submit your OSHA Days Away from Work, Restricted Duty, or Job Transfer (DART) Rate, as defined by the U.S. Department of Labor, Occupational Safety and Health Administration. If you cannot submit an OSHA DART Rate, affirmatively state so, and explain why. Any extenuating circumstances that affected the OSHA DART Rate data should be addressed as part of this element. OSHA DART rates above 2.0, in any of the previous five years, will be considered UNACCEPTABLE, unless an adequate explanation is provided to address the extenuating circumstances that affected the rate.

iii. Technical Approach for Safety:

Describe the plan that the Offeror will implement to qualify, evaluate, select and oversee its potential subcontractors. The Safety narrative shall be limited to one page. Information in excess of one page will not be considered. Offerors must submit both (1) a plan to include the safety performance of subcontractors in the selection process for all levels of subcontractors and (2) a plan to monitor the safety of those subcontractors during contract performance, highlighting what specific management practices will be in place for providing deliberate safety program management and mishap prevention support to those sub-contractors whose EMR is greater than 1.0, whose TRC is greater than 4.0 and whose DART rate is greater than 2.0. Offerors who fail to submit either of these will be rated UNACCEPTABLE.

(b) Basis of Evaluation:

The Government is seeking to determine whether the Offeror has an acceptable safety record. The Government will evaluate the Offeror's overall safety record as evidenced by the TRC and DART rates, if the Offeror's plan includes safety in the evaluation and selection of subcontractors, and if the narrative includes a plan to monitor the safety performance of subcontractors during performance. The evaluation will collectively consider the following:

- OSHA Total Recordable Case (TRC) Rate
- OSHA Days Away from Work, Restricted Duty, or Job Transfer (DART) Rate
- Offeror Technical Approach to Safety

i. OSHA Days Away from Work, Restricted Duty, or Job Transfer (DART) Rate:

The Government will evaluate the OSHA TRC Rate to determine if the Offeror's OSHA TRC rate is above 4.0 and extenuating circumstances that impact the rates. OSHA TRC rates above 4.0, in any of the previous five years, will be considered UNACCEPTABLE, unless an adequate explanation is provided to address the extenuating circumstances that affected the rate.

ii. OSHA Days Away from Work, Restricted Duty, or Job Transfer (DART) Rate:

The Government will evaluate the OSHA DART Rate to determine if the Offeror's OSHA DART rate is above 2.0 and extenuating circumstances that impact the rates. OSHA DART rates above 2.0, in any of the previous five years, will be considered UNACCEPTABLE, unless an adequate explanation is provided to address the extenuating circumstances that affected the rate.

iii. Technical Approach to Safety:

The Government will evaluate the narrative to determine if subcontractor safety performance will be considered in the qualification, evaluation, selection, of all levels of subcontractors on the upcoming project, and both the plan to monitor the safety of those subcontractors during contract performance, highlighting what specific management practices will be in place for providing deliberate safety program management and mishap prevention support to those sub-contractors whose EMR is greater than 1.0, whose TRC is greater than 4.0 and whose DART rate is greater than 2.0. Offerors who fail to address either of these items (i.e. whether the safety performance of subcontractors will be evaluated in the selection process for all levels of subcontractors and whether the safety of those subcontractors will be monitored during contract performance) will be rated UNACCEPTABLE.

(4) Factor 4 – Technical Solution

(a) Solicitation Submittal Requirements:

Provide a narrative describing the technical solution to the project that meets the requirements of the RFP. The narrative shall not exceed three (3) double-side pages (or six (6) single sided pages) and shall be no smaller than 11 pitch font in 8 ½" and 11" format. The submission shall be in narrative form only. A project schedule in any form (e.g. Gantt Charts, Critical Path Method (CPM) schedules, etc.) will not be evaluated. The narrative shall include the following:

i. A description of the Offeror's approach to accomplishing the project's goals and requirements for completing the project within the required time frame. The narrative shall account for: the construction period (clearly identify the number of calendar days), inspection and testing, administrative submittals, project phasing, construction sequencing, and any critical path items including those submittals that must be accepted/ approved before repair and construction work can begin.

ii. The Offeror shall include a discussion of at least (3) elements that have a potential to negatively impact the critical path and what measures will be taken to mitigate impacts to time and resources.

(b) Basis of Evaluation:

Evaluation of this factor will be a subjective assessment of the Offeror's approach to accomplishing the project's goals and requirements for completing the project within the required timeframe to determine if it is realistic and demonstrates the ability to properly accomplish the requirements of the project. Failure to address any of the submission requirements may result in lower ratings. Restating the RFP requirements may result in lower ratings.

(5) Factor 5, Small Business Utilization

Definitions: "SB" as used herein, is intended to include Small Business concerns, Small Disadvantaged Business concerns (SDB), Women-Owned Small Business concerns (WOSB), Historically Underutilized Business Zone Small Business concerns (HUBZone), Veteran-Owned Small Business concerns (VOSB), and Service-Disabled Veteran-Owned Small Business concerns (SDVOSB). All small business programs are self-certifying programs with the exception of HUBZone certifications, see HUBZone SB Certifications below. Small Business Program requirements and definitions may be found in the Federal Acquisition Regulations (FAR), Part 19.

HUBZone SB Certifications: Offerors are reminded that HUBZone SB concerns must obtain formal certification from the Small Business Administration (SBA) if they expect to receive the evaluation benefits associated with the HUBZone SB programs either as a prime or subcontractor(s). For more information on the HUBZone SB certification requirements and available benefits, contact your local SBA representative. Certified HUBZone SB firms are listed on the U.S. Small Business Administration's Dynamic Small Business Search (DSBS) website at http://web.sba.gov/pro-net/search/dsp_dsbs.cfm. It is the responsibility of the prime contractor to periodically check the DSBS as certifications are subject to change.

(a) Solicitation Submittal Requirements:

i. PAST PERFORMANCE IN UTILIZATION OF SMALL BUSINESS CONCERNS:

Proposals that do not include responses addressing ALL elements of the requirements stated below (a through d) must include an explanation why that element is not addressed. Failure to address all elements will result in lower ratings.

a. Provide performance evaluation ratings (i.e., SF1420, DD2626, or equivalent) obtained on the implementation of small business subcontracting plans for all of the Offeror's projects referenced under Factor 2, Past Performance. Recently completed project evaluations are desired, however, in the absence of recently completed project evaluations, interim ratings for projects that are 80% complete may be considered. If more than five evaluation ratings are provided, only the first five will be considered. In addition, the Government may consider past performance information on other projects as made available to the Government from other sources (such as the Construction Contractor Appraisal Support Systems (CCASS)), Architect-Engineer Contract Administration Support System (ACASS) and Contractor Performance Assessment Reporting System (CPARS)).

b. Provide small business subcontracting history. Large businesses with Federal prime contracting experience shall provide final or current Subcontracting Report for Individual Contracts (SF294) or Individual Subcontracting Reports (ISR's) on prime (only) contracts submitted under Factor 2, Past Performance. If Factor 2 submitted contracts are not prime contracts, submit SF294s or ISRs for contracts of similar scope performed as the prime contractor. If goals were not met on any submitted contracts, an explanation for each unmet goal is required. Large

Businesses with no documented SF294/ISR history shall submit a subcontracting history on Attachment F, Small Business Past Performance. If more than five (5) reports are provided, only the first 5 reports will be considered

c. Small Business proposers shall provide a subcontracting history on Attachment F, Small Business Past Performance.

d. If an Offeror is utilizing past performance information of JV partner, subcontractor, or any other entity (name and/ or DUNS is not exactly as stated on the Cover Letter), the proposal shall clearly demonstrate that the entity will have meaningful participation in the management of the subcontracting program/plan by identifying the personnel or resources from the member companies that will be dedicated to managing the plan, and an organization chart which demonstrates the reporting chain within the membership.

If the Offeror is a Joint Venture, Partnership LLC or other entity consisting of more than one entity, provide past performance information, elements a. through d., for each individual business entity(ies) that will be responsible for managing the subcontracting program/plan.

Proposals including information on any of the following additional elements may be rated higher, based on the evaluated extent to which the information addresses the basis of evaluation:

- Provide information on national-level, and industry-issued awards that Offerors received for outstanding support to SB concerns within the past five (5) years. Include purpose, issuer, and date of award(s). National and industry-issued awards received beyond five (5) years will not be considered.
- Provide information on previous, existing, planned or pending mentor-protégé agreements (MPA) under any Federal Government, or other, program held within the last five years. Information should include, at a minimum, the members, objectives, period of performance, and major accomplishments during the MPA.
- Provide information on past use of Community Rehabilitation Program (CRP) organizations certified under the AbilityOne Program by SourceAmerica, or the National Industry for the Blind (NIB). Information should include the contract type, type of work performed, period of performance, and number of employed severely handicapped persons.

ii. SMALL BUSINESS PARTICIPATION

a. Identify in terms of dollar value and percentage of the total acquisition, the extent of work you will perform as the prime contractor. If submitting an offer as a Joint-Venture, identify the percentage of work each member will be responsible for and indicate the size status of each member, e.g., LB, SB, SDB, WOSB, HUBZone SB, etc.

b. If you are a Large Business, submit a Small Business Subcontracting Plan for this project in the format provided in Attachment G for this factor, to include all information required in the Attachment. If you are a Small Business, submit a subcontracting participation breakdown in the format provided in Attachment H for this factor. All proposers: To demonstrate commitment in using small business concerns, the Small Business Subcontracting Plan or subcontracting participation breakdown may list all subcontractors by name. If the proposed Small Business Subcontracting goals do not meet the minimum NAVFAC Small Business Subcontracting Targets, include a detailed explanation describing the actions taken to arrive at that determination, along with an explanation for the goals that actually were proposed. For proposals submitted on design-build solicitations, the proposer must identify its designer/design team in its Subcontracting Plan or Small Business Participation Breakdown.

(b) Basis of Evaluation:

i. PAST PERFORMANCE IN UTILIZATION OF SMALL BUSINESS CONCERNS

The extent to which the proposal demonstrates the proposer's level of past performance in utilizing Small Business (SB) concerns, AbilityOne, Mentor-Protégé Agreements, and other socio-economic programs, as defined in FAR Parts 26.1 and 26.2, in subcontracting, and in meeting established Small Business subcontracting goals.

ii. SMALL BUSINESS PARTICIPATION

The extent to which the proposer's Small Business Subcontracting Plan establishes reasonable efforts demonstrating the subcontracting targets can be met during the performance of the contract:

A copy of the blank forms to be used for Offeror submission of Small Business Utilization are included as follows:

Attachment F – Small Business Past Performance
 Attachment G – Small Business Subcontracting Plan.
 Attachment H – Small Business Offeror Small Business Participation Breakdown

The following will be evaluated on all proposals:

- The extent to which the proposal demonstrates maximum practicable participation of SBs in terms of the total value of the acquisition, including options.
- The extent to which the proposal demonstrates a commitment to use SB concerns that are specifically identified in the proposal, including but not limited to use of mentor protégé programs.
- The extent to which the proposal demonstrates SB participation in a variety of industries expected during the performance of work.
- The realism of the proposal to meet the proposed goals.

The following will be evaluated on proposals submitted by Large Business firms:

i. The extent to which the proposal provides Small Business Subcontracting goals that meet or exceed the minimum NAVFAC Small Business Subcontracting Targets, and utilization of AbilityOne CRP organizations. Proposals that provide goals exceeding the NAVFAC Subcontracting Targets may be rated higher. The proposed goals and NAVFAC Subcontracting Targets are expressed as a percentage of total subcontracted values. The minimum NAVFAC Subcontracting Targets are as follows:

FY 15 NAVFAC Subcontracting Targets	
Small Business	66.80%
Small Disadvantaged Business	17.27%
Women-Owned Small Business	15.30%
HUBZone Small Business	8.94%
Service-Disabled Veteran-Owned SB	3.03%

ii. The extent to which the proposer's Small Business Subcontracting Plan establishes reasonable efforts demonstrating the subcontracting targets can be met during the performance of the contract:

6. Definitions

A supplemental list of definitions applicable to this solicitation is provided as **Attachment I**.

7. Pre-Proposal Conference –

A pre-proposal conference and site visit will be scheduled. See Section 00100 FAR Clause 52.236-27 Site Visit (Construction) (FEB 1995) – Alternate I (FEB 1995) for specific site visit information. See Attachment J – Short Term Visitor Badge Request and Attachment K – Foreign Interest Determination Questionnaire.

**EXHIBITS FOR SUBMISSION REQUIREMENTS ARE PROVIDED AS SEPARATE ATTACHMENTS
ON THE NAVY ELECTRONIC COMMERCE ONLINE (NECO) WEBSITE
AT <https://www.neco.navy.mil/>**

V. ATTACHMENTS

Attachment A – Pre-Proposal Inquiry Form

Attachment B – Schedule of Prices

Attachment C – Construction & Design Experience Project Data Sheet

Attachment D – Past Performance Questionnaire

Attachment E – Past Performance Worksheet for Safety

Attachment F - Small Business Participation Plan

Attachment G – Small Business Subcontracting Plan (Large Businesses)

Attachment H – Small Business Subcontracting Plan (Small Businesses)

Attachment I – Definitions

Attachment J – Short Term Visitor Badge Request

Attachment K – Foreign Interest Determination Questionnaire

Attachment L – SECNAV 5512/ 1 (APR 2014)

(End of Summary of Changes)

**ATTACHMENT E
PAST PERFORMANCE WORKSHEET FOR SAFETY**

OFFEROR: _____

FACTOR 3: Offerors are required to provide the following information for safety and health programs:

a. OSHA Total Recordable Case (TRC) Rate for five previous complete calendar years:
For the five (5) [2009, 2010, 2011, 2012, and 2013] previous complete calendar years, submit your OSHA Total Recordable Case (TRC) Rate, as defined by the U.S. Department of Labor, Occupational Safety and Health Administration. If you cannot submit an OSHA TRC Rate, affirmatively state so, and explain why. Any extenuating circumstances that affected the OSHA TRC Rate data should be addressed as part of this element. OSHA TRC rates above 4.0, in any of the previous five years, will be considered UNACCEPTABLE, unless an adequate explanation is provided to address the extenuating circumstances that affected the rate.

b. OSHA Days away from work, restricted duty or job transfer (DART) rate for five previous complete calendar years:

For the five (5) [2009, 2010, 2011, 2012, and 2013] previous complete calendar years, submit your OSHA Days Away from Work, Restricted Duty, or Job Transfer (DART) Rate, as defined by the U.S. Department of Labor, Occupational Safety and Health Administration. If you cannot submit an OSHA DART Rate, affirmatively state so, and explain why. Any extenuating circumstances that affected the OSHA DART Rate data should be addressed as part of this element. OSHA DART rates above 3.0, in any of the previous five years, will be considered UNACCEPTABLE, unless an adequate explanation is provided to address the extenuating circumstances that affected the rate.

Use the following table to provide information for the above criteria.

SAFETY AND HEALTH PROGRAM ACCIDENT AND INJURY STATISTICS					
YEAR	2013	2012	2011	2010	2009
OSHA TRC Rate					
OSHA DART Rate					
Technical approach					

c. Technical approach for safety :

Describe the plan that the Offeror will implement to qualify, evaluate, select and oversee its potential subcontractors. The Safety narrative shall be limited to one page. Offerors must submit both (1) a plan to include the safety performance of subcontractors in the selection process for all levels of subcontractors and (2) a plan to monitor the safety of those subcontractors during contract performance, highlighting what specific management practices will be in place for providing deliberate safety program management and mishap prevention support to those sub-contractors whose EMR is greater than 1.0, whose TRC is greater than 4.0 and whose DART rate is greater than 3.0. Offerors who fail to submit either of these will be rated UNACCEPTABLE.

Attach sheet to supply Technical Approach for Safety.

SECTION 05 12 40

BUCKLING RESTRAINED BRACES

11/11

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

AISC 341 (2010) Seismic Provisions for Structural Steel Buildings

AMERICAN WELDING SOCIETY (AWS)

AWS A4.3 (2006) Standard Methods for Determination of the Diffusible Hydrogen Content of Martensitic, Bainitic, and Ferritic Steel Metal Produced by Arc Welding

ASTM INTERNATIONAL (ASTM)

ASTM A36/A36M (2012) Standard Specification for Carbon Structural Steel

ASTM A500/A500M (2013) Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes

ASTM A6/A6M (2013a) Standard Specification for General Requirements for Rolled Structural Steel Bars, Plates, Shapes, and Sheet Piling

THE SOCIETY FOR PROTECTIVE COATINGS (SSPC)

SSPC PA 1 (2000; E 2004) Shop, Field, and Maintenance Painting of Steel

SSPC SP 3 (1982; E 2004) Power Tool Cleaning

1.2 DEFINITIONS

"Buckling Restrained Braces" (BRB) refers to steel braces consisting of an outer steel casing, an inner steel core, and a concrete matrix between the core and the outer steel casing. The inner steel core resists tensile and compressive axial loads and is restrained from buckling by the concrete contained in the outer steel casing.

1.3 SYSTEM DESCRIPTION

Provide the buckling restrained brace system, including shop primer,

buckling restrained braces, gusset plates for attachment of the buckling restrained braces to the steel frames, and the bolts, welds and pins needed for completion of the work.

1.4 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for Contractor Quality Control approval. Submit the following in accordance with Section 01 33 00
SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Buckling Restrained Brace [Quality Assurance Plan](#); G

SD-02 Shop Drawings

Erection Drawings ; G

SD-03 Product Data

Shop primer

~~Include test report for Class B primer.~~

SD-05 Design Data

Buckling restrained brace test procedures; G

Buckling restrained brace [Design calculations](#); G

SD-06 Test Reports

~~Class B coating~~

[Qualification Testing Report](#)

SD-07 Certificates

Test Reports; G

1.5 QUALITY ASSURANCE

1.5.1 Drawing Requirements

Submit [erection drawings](#) for approval prior to fabrication. Show location and size and of BRB's. Give complete information necessary for fabrication of elements of structural steel frame to receive braces and fabrication of connection plates. Show methods of assembly, including type and size of bolts and/or pins, hole diameter, and preparation and finish of faying surfaces. Identify tolerances for fabrication and erection.

1.5.2 Design Data

Submit [Buckling restrained brace test procedures](#) including annotated and

drafted illustrations of all proposed test apparatus and procedures for tests required by this Section. Such illustrations shall be submitted and approved by the Contracting Officer prior to the commencement of any testing.

1.5.3 Certifications

1.5.3.1 Test Reports

- a. Certified mill test reports for all steel to be used.
- b. Coupon test results for each lot of steel used in fabrication of steel core plates showing initial yield, ultimate tensile stress, and ultimate elongation. Coupons shall be taken from plates at point of brace manufacture.
- c. Charpy V-Notch testing for each lot of steel used in fabrication of steel core plates where the plates are 2 inches (50 mm) and thicker.
- d. Welding Electrodes: Include tensile, elongation, and CVN toughness tests. Identify diffusible hydrogen.

1.5.3.2 Source Quality Control

Notify Contracting Officer no less than 30 days before the start of fabrication of the buckling restrained braces, to allow Contracting Officer to observe fabrication and assembly process. Perform testing and inspection in accordance with approved Quality Assurance Plan and requirements of Contract Documents.

Quality Assurance Plan: The manufacturer shall have a detailed Quality Assurance Plan to evidence that the BRB's being manufactured continue to be the same as those tested. The Plan shall include the following elements:

- a. Indicate how the product is to be identified, such that it can be traced back to production quality assurance records.
- b. Include a flow chart of the process by which the product is manufactured, including description of production methods.
- c. List tests for materials, including the applicable recognized standard for each test and the qualifications of testing agency and/or personnel.
- d. Identify manufacturing tolerances for each production process.
- e. In-process quality control, including all points of internal inspection for control and monitoring of the fabrication and assembly process. Include copies of forms and checklists used to document inspections and required qualifications of personnel performing each inspection. Identify how inspection reports are reviewed and approved.
- f. Plan shall also include manufacturer furnished quality assurance for erection, including, at a minimum, attendance at pre-erection conference and a minimum of one visit thereafter to observe installation of braces.

1.6 Engineering Requirements

The buckling restrained brace supplier shall design the buckling restrained braces to meet all project requirements. The buckling restrained braces shall be designed by a Professional Engineer, licensed under Title 18 RCW State of Washington, with experience in the design of at least three successfully completed buckling restrained brace projects over the past five years, with buckling restrained braces of equal or greater capacity than required in these plans and specifications.

Design calculations shall include, but not be limited to, the following items:

- a. Design Drawings: Show size and configuration of steel core for full length of BRB. Indicate casing size, thickness and length.
- b. Calculations: Provide design calculations showing the adequacy of proposed BRB's to achieve Performance Requirements specified herein.
- c. Preliminary Design: At Contractor's option, make an initial submittal of the items listed above, based on assumed material properties, prior to delivery of materials to be employed in work.
- d. Final Design: Submit final drawings, calculations and certifications that include the final dimensions of steel core plates based on results of coupon testing of steel to be employed in Work. The Brace Manufacturer's Engineer shall seal and sign final calculations, drawings and required certification. Submittal shall be accompanied by the results of coupon testing.

1.6.1 Design Requirements

- a. Manufacturer's Engineer shall design braces to achieve the Performance Criteria. Design shall be based on detailed examination and understanding of the results of qualifying cyclic tests and interpolation of results to project conditions.
- b. Interpolation of test results for different member sizes shall be justified by rational analysis that demonstrates stress distributions and magnitudes of internal strains that are consistent with or less severe than the tested assemblies and that considers the adverse effects of larger material and variations in material properties.
- c. Consider the effect of imposed end rotations.
- d. Coupon test results shall be used as the basis for brace design.

Performance Criteria

- a. Initial "BRB" yield force or area shall be as indicated, within the tolerances specified on the Contract Documents.
- b. Braces shall provide for stable cyclic displacement within the ranges required per AISC 341. Hysteretic behavior in the non-linear range shall show no sign of degradation or loss of strength. Graphs of test results shall show no signs of pinched hysteretic behavior.
- c. The portion of the steel core that projects beyond the casing shall provide for stable cyclic loading.

- d. Tension and compression shall be resisted entirely by the steel core. The buckling restraining system shall prevent brace buckling and control plate buckling without restraining the steel core from transverse expansion and longitudinal shortening for deformations corresponding to 2 times the design inter-story drift.
 - e. End connections and connection configuration, including gusset stiffeners, must be similar to the tested conditions.
- 1.7 Testing requirements

Qualification Testing Report: The design of braces shall be based on results from qualifying cyclic tests. Tests shall consist of at least two successful cyclic tests: one is required to be a test of a brace subassembly that includes brace connection imposed rotations and the other may be either a uniaxial or subassembly test. If a pin and collar connection is used the subassembly test is not required. If project specific testing is required to supplement available test data, include schedule for fabrication of BRB test specimens, description of proposed testing program and name of test facility and schedule for testing and reporting.

- a. Qualification Tests shall conform to requirements of Appendix T of the **AISC 341**.
- b. Qualification tests are permitted to be based on documented full-scale cyclic tests performed for other projects or tests reported in research, provided that there is sufficient basis for extrapolation to project conditions.
- c. Extrapolation of previous test results beyond the limitations **AISC 341** Appendix T will not be permitted. All deviations from materials, details of fabrication, and quality assurance controls used for the fabrication of tested prototype braces shall be identified by manufacturer and reviewed by Professional Engineer responsible for the design of Buckling restrained Braces to ensure that production braces meet or exceed the level of quality used in fabrication of prototype braces. Include the following items:
 - 1. Weld filler material, including CVN toughness.
 - 2. Welding procedures and details, including weld terminations.
 - 3. Shape and finish of plate edges at transitions.
 - 4. Finish of plate edges, including roughness and treatment of occasional notches.
 - 5. Tolerances for flatness and straightness of plates.
 - 6. Details of isolation between plates and core at transitions, to accommodate lengthening and shortening.
 - 7. Type and thickness of coating materials.

PART 2 PRODUCTS

2.1 Structural Steel

Provide gusset plates, bolts, nuts, washers and welds in accordance with Section 05 12 00.

~~2.2 SHOP PRIMER~~

~~SSPC Paint 25, (alkyd primer) or SSPC PS 13.01 epoxy polyamide, green primer (Form 150) type 1, except provide a Class B coating in accordance with AISC 325 for slip critical joints. Primer shall conform to Federal, State, and local VOC regulations. If flash rusting occurs, re-clean the surface prior to application of primer.~~

2.2 Buckling Restrained Braces

2.2.1 Acceptable Manufacturers

The following are acceptable manufacturers:

- a. STAR Seismic; Park City, UT, USA
- b. Core Brace; West Jordan, UT, USA
- c. Nippon Steel Engineering USA, Los Angeles, CA, USA

2.2.2 Materials

2.2.2.1 Steel core areas

ASTM A36/A36M; except initial yield stress shall be within the tolerances shown on the Contract Documents, as evidenced by coupon testing of plates to be incorporated in work. If the contract documents do not state the initial yield stress it shall be 42.0 ksi with the averages of the coupon tests be between 39 and 46 ksi. Plates 2 inches (50 mm) and thicker shall be supplied with Charpy V-Notch testing in accordance with ASTM A6/A6M Supplementary Requirement S5, or approved equal. The impact test shall meet a minimum average value of 20 ft-lbs absorbed energy at +70 degrees F and shall be conducted in accordance with AISC Specification, or approved equal.

2.2.2.2 Casing

ASTM A500/A500M, Grade B. The maximum dimensions of the casing of the buckling restrained brace shall not exceed those indicated on the Contract Documents.

2.2.2.3 Welding filler material

Meet or exceed CVN toughness and elongation of material used for fabrication of tested assemblies. H16 (diffusible hydrogen), AWS A4.3.

2.2.2.4 Shop primer~~Shop primer~~

Interior braces and gussets not in contact with concrete: Manufacturer's standard primer.

Interior braces and gussets in contact with concrete: No primer required.

Galvanize per structural notes.Exterior braces and gussets: Primer in accordance with 09 96 00
HIGH-PERFORMANCE COATINGS.

2.2.2.5 Debonding agent

Manufacturer's standard; demonstrated suitable to maintain separation of steel core and grout encasement when subjected to a minimum of 30 cycles of inelastic yielding at 2.0 percent strain; resistant to aging effects for a life cycle of 50 years.

2.2.2.6 Fill material

Manufacturer's standard cementitious grout; demonstrated suitable for function as a confining in-fill material by uniaxial or subassembly qualification testing.

2.2.3 Fabrication

Fabricate steel components in accordance with the requirements of this specification.

2.2.3.1 Core Plates

- a. Cut core plates to profile shown on Design Drawings. Conform to tolerances of Quality Assurance Manual, except tolerance on plate width shall not exceed plus or minus 0.2 inches (5 mm).
- b. Splices in the steel core are not acceptable.
- c. Roughness: After cutting, edges of core plates shall have roughness less than 1000 micro-inches.
- d. Gouges and Notches: Occasional gouges and notches less than 0.2 inches (5 mm) deep in edges of core plates may be repaired by grinding to a smooth transition. The length of transition shall be a minimum of 10 times the depth of gouge. The area shall be inspected by magnetic particle testing after grinding to ensure the entire depth of gouge has been removed. Deeper gouges shall be cause for rejection of piece

2.2.3.2 Bolted Connections

All holes for bolted connections shall be drilled and burrs removed.

2.2.3.3 Pin Connections

All holes for pinned connections shall be machined 1/32 in larger than the pin diameter.

2.2.3.4 Welding

Continuously weld joints, using procedures intended to minimize distortion. Where cruciform plates are terminated in core, pay particular attention to the detailing and finishing of weld termination; meet or exceed qualification tested assembly as minimum standard.

2.2.3.5 Assembly

Assemble components of the Buckling Restrained Brace in a manner to ensure proper performance of the brace.

- a. Examine steel core areas for straightness prior to coating with de-bonding agent or pouring with concrete.
- b. Provide end-confining plates to ensure confinement of the fill material while allowing for non-restricting movement of the steel core.
- c. For braces exposed to exterior or corrosive conditions, interior of brace shall be sealed or otherwise protected from moisture/corrosive element infiltration into the interior core region.

2.3 FABRICATION

2.3.1 Markings

Prior to erection, members shall be identified by a painted erection mark. Connecting parts assembled in the shop for reaming holes in field connections shall be match marked with scratch and notch marks. Do not locate erection markings on areas to be welded. Do not locate match markings in areas that will decrease member strength or cause stress concentrations.

2.3.2 Shop Primer

Where manufacturer's standard primer is required by Paragraph 2.2.2.4, Ss hop prime buckling restrained braces and gusset plates, except as modified herein, in accordance with SSPC PA 1. Do not prime steel surfaces within 0.5 inch of the toe of the welds prior to welding. ~~Slip critical surfaces shall be primed with a Class B coating.~~ Do not apply primer in foggy or rainy weather; when the ambient temperature is below 45 degrees F or over 95 degrees F; or when the primer may be exposed to temperatures below 40 degrees F within 48 hours after application, unless approved otherwise by the Contracting Officer.

Where 09 96 00 HIGH-PERFORMANCE COATINGS is referenced by Paragraph 2.2.2.4 for the primer, reference that section for application requirements. Do not prime steel surfaces within 0.5 inch of the toe of the welds prior to welding.

2.3.2.1 Cleaning

Where manufacturer's standard primer is required by Paragraph 2.2.2.4, clean in accordance with SSPC SP 3~~SSPC SP 6/NACE No. 3~~. Maintain steel surfaces free from rust, dirt, oil, grease, and other contaminants through final assembly.

Where 09 96 00 HIGH-PERFORMANCE COATINGS is referenced by Paragraph 2.2.2.4 for the primer, reference that section for cleaning requirements.

2.3.2.2 Primer

Where manufacturer's standard primer is required by Paragraph 2.2.2.4, Aa apply primer to a minimum dry film thickness of 2.0 mil ~~except provide the Class B coating for slip critical joints in accordance with the coating manufacturer's recommendations~~. Repair damaged primed surfaces with an

additional coat of primer.

Where 09 96 00 HIGH-PERFORMANCE COATINGS is referenced by Paragraph 2.2.2.4 for the primer, reference that section for dry film thickness and repair requirements.

PART 3 EXECUTION

3.1 ERECTION

Erection of buckling restrained braces shall be in conformance with 05 12 00.

- a. Prior to erection, clean faying surfaces of brace to be in contact with bolted connections to remove temporary coatings applied for transport and surface contaminants.
- b. Buckling restrained braces shall not be field cut or altered. Alterations to structural steel components to receive Buckling Restrained Braces shall be as permitted by 05 12 00.
- c. No field welding to buckling restrained brace members will be permitted, including attachment of nonstructural components.

3.1.1 DELIVERY, HANDLING AND STORAGE

Manufacturer to package BRB's for protection against shipping damage.

Manufacturer shall coordinate delivery dates and quantities with contractor/Owner. Contractor/Owner shall provide adequate storage space and proper lay-down areas.

Braces shall be stored on dunnage not touching the ground.

3.2 FIELD QUALITY CONTROL

Perform field tests, and provide labor, equipment, and incidentals required for testing. The Contracting Officer shall be notified in writing of defective welds, bolts, nuts, and washers within 7 working days of the date of weld inspection. Required tests and inspections are indicated on the drawings.

-- End of Section --

SECTION 05 30 00

STEEL DECKS

11/11

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN IRON AND STEEL INSTITUTE (AISI)

AISI SG03-3 (2002; Suppl 2001-2004; R 2008)
Cold-Formed Steel Design Manual Set

AMERICAN WELDING SOCIETY (AWS)

AWS D1.1/D1.1M (2010; Errata 2011) Structural Welding
Code - Steel

AWS D1.3/D1.3M (2008; Errata 2008) Structural Welding
Code - Sheet Steel

ASTM INTERNATIONAL (ASTM)

ASTM A1008/A1008M (2013) Standard Specification for Steel,
Sheet, Cold-Rolled, Carbon, Structural,
High-Strength Low-Alloy and High-Strength
Low-Alloy with Improved Formability,
Solution Hardened, and Bake Hardened

ASTM A653/A653M (2013) Standard Specification for Steel
Sheet, Zinc-Coated (Galvanized) or
Zinc-Iron Alloy-Coated (Galvannealed) by
the Hot-Dip Process

ASTM A780/A780M (2009) Standard Practice for Repair of
Damaged and Uncoated Areas of Hot-Dip
Galvanized Coatings

ASTM A792/A792M (2010) Standard Specification for Steel
Sheet, 55% Aluminum-Zinc Alloy-Coated by
the Hot-Dip Process

STEEL DECK INSTITUTE (SDI)

SDI 31 (2007) Design Manual for Composite Decks,
Form Decks, and Roof Decks

SDI DDM03 (2004; Errata 2006; Add 2006) Diaphragm
Design Manual; 3rd Edition

SDI DDP (1987; R 2000) Deck Damage and Penetrations

SDI MOC2 (2006) Manual of Construction with Steel

Deck

1.2 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for Contractor Quality Control approval. Submit the following in accordance with Section 01 33 00

SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Fabrication Drawings

Cant Strips

Ridge and Valley Plates

Metal Closure Strips

SD-03 Product Data

Accessories

Galvanizing Repair Paint

Welder Qualifications

SD-05 Design Data

Deck Units

Submit manufacturer's design calculations, or applicable published literature for the structural properties of the proposed deck units.

1.3 QUALITY ASSURANCE

1.3.1 Deck Units

Furnish deck units and accessory products from a manufacturer regularly engaged in manufacture of steel decking. Provide manufacturer's certificates attesting that the decking material meets the specified requirements.

1.3.2 Qualifications for Welding Work

Submit qualified [Welder Qualifications](#) in accordance with [AWS D1.1/D1.1M](#), or under an equivalent approved qualification test.

1.3.3 Fabrication Drawings

Show type and location of units, location and sequence of connections, bearing on supports, methods of anchoring, attachment of accessories, adjusting plate details, size and location of holes to be cut and reinforcement to be provided, the manufacturer's erection instructions and other pertinent details.

1.4 DELIVERY, STORAGE, AND HANDLING

Deliver deck units to the site in a dry and undamaged condition. Store and handle steel deck in a manner to protect it from corrosion, deformation, and other types of damage. Do not use decking for storage or as working platform until units have been fastened into position. Exercise care not to damage material or overload decking during construction. The maximum uniform distributed storage load must not exceed the design live load. Stack decking on platforms or pallets and cover with weathertight ventilated covering. Elevate one end during storage to provide drainage. Maintain deck finish at all times to prevent formation of rust. Repair deck finish using touch-up paint. Replace damaged material.

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Steel Sheet

Flat rolled carbon steel sheets of structural quality, thickness not less than indicated, meeting the requirements of [AISI SG03-3](#), except as modified herein.

2.1.2 Steel Coating

[ASTM A653/A653M](#) designation G60 galvanized, or [ASTM A792/A792M](#) designation [AZ55](#), aluminum-zinc alloy. Apply coating to both sides of sheet.

2.1.3 [Galvanizing Repair Paint](#) for Roof Decks

Provide a high zinc-dust content paint for regalvanizing welds in galvanized steel and shall conform to [ASTM A780/A780M](#).

2.2 ACCESSORIES

Provide accessories of same material as deck, unless specified otherwise. Provide manufacturer's standard type accessories, as specified.

2.2.1 Adjusting Plates

Provide adjusting plates, or segments of deck units, of same thickness and configuration as deck units in locations too narrow to accommodate full size units. Provide factory cut plates of predetermined size where possible.

2.2.2 End Closures

Fabricated of sheet metal by the deck manufacturer. Provide end closures minimum [0.028 inch](#) thick to close open ends at parapets and openings through deck.

2.2.3 Sheet Metal Collar

Where deck is cut for passage of pipes, ducts, columns, etc., and deck is to remain exposed, provide a neatly cut sheet metal collar to cover edges of deck. Do not cut deck until after installation of supplemental supports.

2.2.4 Cover Plates

Sheet metal to close panel edge and end conditions, and where panels change direction or butt. Polyethylene-coated, self-adhesive, 2 inch wide joint tape may be provided in lieu of cover plates on flat-surfaced decking butt joints.

Fabricate cover plates for abutting floor deck units from the specified structural-quality steel sheets not less than nominal thick before galvanizing. Provide 6 inch wide cover plates and form to match the contour of the floor deck units.

2.2.5 Miscellaneous Accessories

Furnish the manufacturer's standard accessories to complete the deck installation. Furnish metal accessories of the same material as the deck and with the minimum design thickness as follows: saddles, 0.0474 inch welding washers, 0.0598 inch cant strip, 0.0295 inch other metal accessories, 0.0358 inch unless otherwise indicated. Accessories must include but not be limited to saddles, welding washers, fasteners, cant strips, butt cover plates, underlapping sleeves, and ridge and valley plates.

2.3 FABRICATION

2.3.1 Roof Deck

Conform to ASTM A792/A792M or ASTM A1008/A1008M for deck used in conjunction with insulation and built-up roofing. Fabricate roof deck units of the steel design thickness required by the design drawings and galvanized.

2.3.1.1 Cant Strips for Roof Decks

Fabricate cant strips from the specified commercial-quality steel sheets not less than nominal 0.0359 inch thick before galvanizing. Bend strips to form a 45-degree cant not less than 5 inch wide, with top and bottom flanges a minimum 3 inch wide. Length of strips 10 feet.

2.3.1.2 Ridge and Valley Plates for Roof Decks

Fabricate plates from the specified structural-quality steel sheets, not less than nominal 0.0359 inch thick before galvanizing. Provide plates of minimum 4-1/2 inch wide and bent to provide tight fitting closures at ridges and valleys. Provide a minimum length of ridge and valley plates of 10 feet.

2.3.1.3 Metal Closure Strips for Roof Decks

Fabricate strips from the specified commercial-quality steel sheets not less than nominal 0.0359 inch thick before galvanizing. Provide strips from the configuration required to provide tight-fitting closures at open ends and sides of steel roof decking.

2.3.2 Touch-Up Paint

After roof decking installation, wire brush, clean, and touchup paint the scarred areas on top and bottom surfaces of metal roof decking with galvanizing repair paint. The scarred areas include welds, weld scars, bruises, and rust spots.

PART 3 EXECUTION

3.1 EXAMINATION

Prior to installation of decking units and accessories, examine worksite to verify that as-built structure will permit installation of decking system without modification.

3.2 INSTALLATION

Install steel deck units in accordance with [SDI 31](#), [SDI DDMO3](#) and approved shop drawings. Place units on structural supports, properly adjusted, leveled, and aligned at right angles to supports before permanently securing in place. Damaged deck and accessories including material which is permanently stained or contaminated, deformed, or with burned holes shall not be installed. Extend deck units over three or more supports unless absolutely impractical. Report inaccuracies in alignment or leveling to the Contracting Officer and make necessary corrections before permanently anchoring deck units. Locate deck ends over supports only. Do not use unanchored deck units as a work or storage platform. Permanently anchor units placed by the end of each working day. Do not support suspended ceilings, light fixtures, ducts, utilities, or other loads by steel deck unless indicated. Distribute loads by appropriate means to prevent damage.

3.2.1 Attachment

Immediately after placement and alignment, and after correcting inaccuracies, permanently fasten steel deck units to structural supports and to adjacent deck units by welding as indicated on the design drawings and in accordance with manufacturer's recommended procedure. Clamp or weight deck units to provide firm contact between deck units and structural supports while performing welding.

3.2.1.1 Welding

Perform welding in accordance with [AWS D1.3/D1.3M](#) using methods and electrodes recommended by the manufacturers of the base metal alloys being used. Ensure only operators previously qualified by tests prescribed in [AWS D1.1/D1.1M](#) and [AWS D1.3/D1.3M](#) make welds. Immediately recertify, or replace qualified welders, that are producing unsatisfactory welding. Holes and similar defects will not be acceptable. Lap [2 inch](#) deck ends. Attach all partial or segments of deck units to structural supports in accordance with Section 2.5 of [SDI DDMO3](#). Immediately clean welds by chipping and wire brushing. Heavily coat welds, cut edges and damaged portions with galvanized repair paint.

3.2.2 Openings

Cut or drill all holes and openings required and be coordinated with the drawings, specifications, and other trades. Frame and reinforce openings through the deck in conformance with [SDI DDP](#). Reinforce holes and openings [6 to 12 inch](#) across by [0.0474 inch](#) thick steel sheet at least [12 inch](#) wider and longer than the opening and be fastened to the steel deck at each corner of the sheet and at a maximum of [6 inch](#) on center. Reinforce holes and openings larger than [12 inch](#) by steel channels or angles installed perpendicular to the steel joists and supported by the adjacent steel joists. Install steel channels or angles perpendicular to the deck

ribs and fasten to the channels or angles perpendicular to the supporting structure.

3.2.3 Deck Damage

SDI MOC2, for repair of deck damage.

3.2.4 Accessory Installation

3.2.4.1 Adjusting Plates

Provide in locations too narrow to accommodate full-size deck units and install as shown on shop drawings.

3.2.4.2 End Closures

Provide end closure to close open ends of cells at columns, walls, and openings in deck.

3.3 CANT STRIPS FOR ROOF DECKS

Provide strips to be fusion welded to surface of roof decking, secured to wood nailers by galvanized screws or to steel framing by galvanized self-tapping screws or welds. Do not exceed spacing of welds and fasteners of 12 inch. Lap end joints a minimum 3 inch and secure with galvanized sheet metal screws spaced a maximum 4 inch on center.

3.4 RIDGE AND VALLEY PLATES FOR ROOF DECKS

Provide plates to be fusion welded to top surface of roof decking. Lap end joints a minimum 3 inch. For valley plates, provide endlaps to be in the direction of water flow.

3.5 CLOSURE STRIPS FOR ROOF DECKS

Provide closure strips at open, uncovered ends and edges of the roof decking and in voids between roof decking and top of walls and partitions where indicated. Install closure strips in position in a manner to provide a weathertight installation.

3.6 ROOF INSULATION SUPPORT FOR ROOF DECKS

Provide metal closure strips for support of roof insulation where rib openings in top surface of metal roof decking occur adjacent to edges and openings. Weld metal closure strips in position.

3.7 CLEANING AND PROTECTION FOR ROOF DECKS

Upon completion of the deck, sweep surfaces clean and prepare for installation of the roofing.

-- End of Section --

SECTION 14 21 00.00 20

ELECTRIC TRACTION ELEVATORS
05/12

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only. Comply with most stringent applicable provisions of following Codes, laws, and acts, including revisions and changes in effect:

AMERICAN WELDING SOCIETY (AWS)

AWS B2.1/B2.1M (2014) Specification for Welding Procedure and Performance Qualification

AWS D1.1/D1.1M (2010; Errata 2011) Structural Welding Code - Steel

ASME INTERNATIONAL (ASME)

ASME A17.1/CSA B44 (2013) Safety Code for Elevators and Escalators

ASME A17.2 (2012) Guide for Inspection of Elevators, Escalators, and Moving Walks Includes Inspection Procedures for Electric Traction and Winding Drum Elevators, Hydraulic Elevators, and Escalators and Moving Walks

ASME A17.3 (2011) Safety Code for Existing Elevators and Escalators

ASME QEI-1 (2013) Standard for the Qualification of Elevator Inspectors

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 101 (2015) Life Safety Code

NFPA 70 (2014; AMD 1 2013; Errata 1 2013; AMD 2 2013; Errata 2 2013; AMD 3 2014; Errata 3 2014) National Electrical Code

NFPA 72 (2013) National Fire Alarm and Signaling Code

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1910.27 Fixed Ladders

36 CFR 1191 Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and

Facilities; Architectural Barriers Act
(ABA) Accessibility Guidelines

1.2 SYSTEM DESCRIPTION

Provide a pre-engineered elevator system, by manufacturer regularly engaged in the manufacture of elevator systems, that complies with ASME A17.1/CSA B44 and ASME A17.2, in their entirety, and additional requirements specified herein.

1.2.1 Fire Protection System

Provide a fire protection system complying with the applicable provisions of NFPA 72, NFPA 101, and ASME A17.1/CSA B44.

1.2.2 Miscellaneous Requirements

Submit one set of wiring diagrams, in plastic or glass cover, framed and mounted in elevator machine room for revised building electrical system, if needed, to make supplied elevator system function as specified. Deliver other sets to Contracting Officer. Coded diagrams are not acceptable unless adequately identified. Submit calculations for the reaction loads imposed on the building by the elevator system and heat loads generated by the elevator system.

1.2.3 Provisions for Earthquake Protection

This facility is located in seismic zone 3, and shall comply with all ASME A17.1/CSA B44, Part 8, Section 8.4 requirements as applicable by location.

1.3 SUBMITTALS

Government approval is required for submittals with a "G" designation; submittals not having a "G" designation are for Contractor Quality Control approval. The following shall be submitted in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-02 Shop Drawings

Elevator and accessories; G

Machinery and controls; G

Wiring diagrams

Sequence of operations

SD-03 Product Data

Elevator supporting systems

Data sheets

Maintenance and diagnostic tools

Logic control

SD-05 Design Data

Reaction loads

SD-07 Certificates

Welders' qualifications

SD-10 Operation and Maintenance Data

Elevator, Data Package 4 G

Submit in accordance with Section 01 78 23 OPERATION AND MAINTENANCE DATA.

Maintenance and Repair Action Plan

1.4 QUALITY ASSURANCE

1.4.1 Qualification

Provide pre-engineered elevator system by a manufacturer regularly engaged in the manufacture of elevator systems. The manufacturer shall either install elevator system or shall provide letter of endorsement certifying that the elevator-system installer is acceptable to the manufacturer. An installer is required to be regularly engaged in the installation and maintenance of elevator system.

1.4.2 Elevator Specialist

Work specified in this section shall be performed in compliance with ASME A17.3 under the direct guidance of the Elevator Specialist who is regularly engaged in the installation and maintenance of the type and complexity of elevator system specified in the contract documents, and who served in a similar capacity for at least three systems that have performed in the manner intended for a period of not less than 24 months. Elevator system manufacturer shall provide a letter of endorsement certifying that the Elevator Specialist is acceptable to manufacturer. The Elevator Specialist shall oversee the acceptance inspections and tests, and sign and certify the successful results, and after completion of the acceptance inspections and tests, certify in writing that the installation is in accordance with the contract requirements. Bring any discrepancies to the attention of the Contracting Officer in writing, no later than three working days after the discrepancy is discovered.

1.4.3 Elevator Inspector

The Elevator Inspector shall be certified in accordance with the requirements of ASME A17.1/CSA B44 and ASME QEI-1 and licensed by the State of Washington in elevator inspection. The Certified Elevator Inspector shall inspect the installation of the elevator(s) to ensure that the installation conforms with all contract requirements. The Elevator Inspector shall be directly employed by the Prime Contractor and be independent of the elevator system manufacturer and the Elevator Specialist and shall witness the acceptance inspections and tests, approve all results, and sign and certify the successful results. The Elevator Inspector, after completion of the acceptance inspections and tests, shall certify in writing that the installation is in accordance with the contract requirements. Bring any discrepancy, including any safety-related deficiencies, to the attention of the Contracting Officer

in writing, no later than three working days after the discrepancy is discovered.

The Elevator Inspector will be provided by the Government to inspect the installation of the elevator(s) and to ensure that the installation conforms with all contract requirements. A NAVFAC-Certified Elevator Inspector will be utilized as required on NAVFAC projects. The Elevator Inspector will witness the acceptance inspections and tests, approve all results, and sign and certify the successful results. The Elevator Inspector, after completion of the acceptance inspections and tests, will certify in writing that the installation is in accordance with the contract requirements. Bring any discrepancy, including any safety-related deficiencies, to the attention of the Contracting Officer in writing, no later than three working days after the discrepancy is discovered.

1.4.4 Shop Drawing Requirements

Provide assembly and arrangement of elevators, accessories, and supporting systems. Show location of **machinery and controls** in machine room. Provide details for materials and equipment, including but not limited to operating and signal fixtures, doors, door and car frames, car enclosure, controllers, motors, guide rails and brackets, layout of hoistway in plan and elevation, and other layout information and clearance dimensions. Submit complete **wiring diagrams** and **sequence of operations**, which show electrical connections and functions of elevator systems, for the machine room, hall and in the hoistway. Provide one set of wiring diagrams in plastic or glass cover, framed and mounted in the elevator machine room. Deliver other sets to the Contracting Officer. Coded diagrams are not acceptable unless adequately identified.

1.4.5 Detail Drawings

- a. Submit Detail Drawings, including dimensioned layouts in plan and elevation, showing the arrangement of elevator equipment, accessories, and data sheets showing all:
- (1) Supporting systems
 - (2) Anchorage of equipment
 - (3) Clearances for maintenance and operation
 - (4) Details on hoistway
 - (5) Doors and frames
 - (6) Operation and signal stations
 - (7) Machinery and controls
 - (8) Motors
 - (9) Guide rails and brackets
 - (10) Points of interface with normal power
 - (11) Fire alarm system
 - (12) HVAC or exhaust systems
 - (13) Interface with emergency power systems
- b. Include in the Drawings complete wiring diagrams showing electrical connections and other details required to demonstrate sequence of operations and functions of system devices, and the appropriate sizing of electrical protective devices, which are frequently different from National Electrical Code standard sizes. Drawings shall show any revised building electrical system required to make supplied elevator system function as specified.

1.4.6 Product Data Requirements

Include information on motor, hall station, and buffer on elevators and accessories. For elevator supporting systems, include information on car control systems, and for data sheets, provide document identification number or bulletin number, published or copyrighted prior to the date of contract bid opening.

1.4.7 Design Data: Reaction Load Data Requirements

Provide calculations to the Contracting Officer for reaction loads imposed on building by elevator system. Demonstrate calculations complying with ASME A17.1/CSA B44, Appendix F. Provide calculations certified by a licensed structural engineer registered in any state. Do not fabricate materials nor perform construction until approved by the Contracting Officer.

1.4.8 ~~Certificates: Welders' Requirements~~ Qualifications

~~Comply with AWS D1.1/D1.1M, Section 5. Include certified copies of welders' qualifications. List welders' names with corresponding code marks to identify each welder's welding work.~~ Comply with AWS D1.1/D1.1M, Section 4, and AWS B2.1/B2.1M. Provide certified copies of welders' qualifications and a list of welders' names with corresponding code marks to identify each welder's work.

1.5 SCHEDULING

Every six months, test systems for Earthquake Emergency Operations and Firefighters' Service. Schedule to not interfere with building operations. For Firefighters' Service, test monthly in accordance with ASME A17.1/CSA B44, Paragraph 8.6.11.1. Provide written results of each test operation to the Contracting Officer.

1.6 NEW INSTALLATION SERVICE

Provide routine warranty service in accord with the manufacturer's warranty requirements and the FAR, for a period of 12 months after the date of acceptance by Contracting Officer. Include 24-hour emergency service, with 1 hour response time, during regular working hours and a 2-hour response time before 7 a.m. and after 5 p.m. Monday through Friday, and all day on Saturday and Sunday, during this period without additional cost to the Government. Include adjustments, greasing, oiling, and cleaning. Provide routine inspection and tests of elevators in accordance with ASME A17.1/CSA B44 (Sections 1001 and 1002) and ASME A17.2. Provide supplies and parts to keep elevator system in operation. Perform service only by factory trained personnel.

1.6.1 Special Operations

Every six months, test systems for Battery Rescue Operation, Earthquake Emergency Operation, and Firefighters' Service. Schedule to not interfere with building operations. For Firefighter's Service, test monthly in accordance with ASME A17.1/CSA B44, Rule ~~1206-78.6.11~~. Provide category one testing prior to end of warranty period. Deliver written results of each test operation to the Contracting Officer.

~~1.6.2 Maintenance and Diagnostic Tools~~

~~Provide all special tools and software necessary to service and maintain each elevator; deliver at time of final acceptance. Provide one of each tool per group of elevators. Provide solid state or microprocessor diagnostic tools unavailable on the open market. Include necessary diagnostic software in cases where the solid state or microprocessor diagnostic tools are available on the open market.~~

~~1.6.3 Keys for Elevator Key Switches~~

~~Provide a minimum of 12 keys per unique cylinder used on all key switches for a single elevator. If there is more than one elevator, additional keys will not be required unless there are additional unique lock cylinders. Provide keys with brass or fiberglass tags marked "PROPERTY OF THE U.S. GOVERNMENT" on one side with function of key or approved code number on the other side.~~

1.7 WARRANTY

Provide routine warranty service in accord with the manufacturer's warranty requirements for a period of 12 months after the date of acceptance by Contracting Officer. Perform work during regular working hours. During the warranty service period, include 24-hour emergency service, with 1-hour response time, without additional cost to the Government. Include adjustments, greasing, oiling, and cleaning. Provide routine inspection and tests of elevators in accordance with ASME A17.1/CSA B44 (Section 8.10) and ASME A17.2. Provide supplies and parts to keep elevator system in operation. Perform service only by factory trained personnel. Maintain a maintenance log of all service orders performed during the warranty period and submit it to the Contracting Officer 21 days prior to the end of the warranty period.

~~1.8 FIRE PROTECTION SYSTEM~~

~~Additional fire protection requirements are located in; Section-28-31-63.00-20 ANALOG/ADDRESSABLE INTERIOR FIRE ALARM SYSTEM; Section-21-13-13.00-20 WET PIPE SPRINKLER SYSTEM, FIRE PROTECTION; and Section-26-20-00 INTERIOR DISTRIBUTION SYSTEM.~~

1.8 MAINTENANCE MAINTENANCE AND REPAIR ACTION PLAN1.8.1 Maintenance and Repair Action Plan

~~Provide plan of action by the Elevator Installation Contractor to provide emergency and routine maintenance in accordance with paragraph entitled "New Installation Services". In addition to Data Package SD-19 "Operation and Maintenance Manuals", provide a list of phone numbers, personnel contacts, and all tools to be provided to the Contracting Officer.~~

Submit elevator manuals in accordance with Section 01 78 23 OPERATION AND MAINTENANCE DATA. Include diagnostic equipment complete with access codes, adjusters' manuals and set-up manuals for adjustment, diagnosis and troubleshooting of elevator system, and performance of routine safety tests as part of elevator manuals.

Provide plan of action by the Elevator Installation Contractor to provide emergency and routine maintenance in accordance with paragraph titled WARRANTY. In addition to Data Package SD-19 "Operation and Maintenance

Manuals," provide a list of phone numbers, personnel contacts, and all tools to be provided to the Contracting Officer. Submit elevator manuals in accordance with Section 01 78 23 OPERATION AND MAINTENANCE DATA.

1.8.2 Maintenance and Diagnostic Tools

Provide all special tools and software necessary to service and maintain each elevator delivered at time of final acceptance. Provide one of each tool per group of elevators. Include solid state or microprocessor diagnostic tools unavailable on the open market. Include necessary diagnostic software in cases where the solid state or microprocessor diagnostic tools are available on the open market.

1.8.3 Keys for Elevator Key Switches

Provide a minimum of 12 keys per unique cylinder used on all key switches for single elevator. If there is more than one elevator, additional keys are not required unless there are additional unique lock cylinders. Provide keys with brass or fiberglass tags marked "PROPERTY OF THE U.S. GOVERNMENT" on one side with function of key or approved code number on the other side.

PART 2 PRODUCTS

2.1 ELEVATOR DESCRIPTION

~~Provide elevator system that complies with ASME A17.1/CSA B44 in its entirety, ASME A17.2 in its entirety, and additional requirements specified herein.~~ Provide elevator system that complies with ASME A17.1/CSA B44, ASME A17.2, and ASME A17.3 in their entirety, and additional requirements specified herein. Submit Data Package 4 in accordance with Section 01 78 23 OPERATION AND MAINTENANCE DATA.

- a. The scope of work in this specification defines the elevator modernization work for existing passenger elevator 5 and existing freight elevator 7 in Building 431 at Puget Sound Naval Shipyard in Bremerton, WA. In order to discover and resolve conflicts or lack of definition that might create problems, Contractor must review Contract Documents and site conditions for compatibility with its product prior to submittal of quotation. Review existing structural, electrical, and mechanical provisions for compatibility with Contractor's products. Purchaser will not pay for change to structural, mechanical, electrical, or other systems required to accommodate Contractor's equipment.
- b. Unless specifically identified as "retain existing," in this specification provide new equipment. Information included in Contract Documents relates to both elevators unless specifically indicated for one of the elevators. In order to discover and resolve conflicts or lack of definition that might create problems, Contractor must review Contract Documents and site conditions for compatibility with its product prior to submittal of quotation.

2.1.1 Passenger Elevator 5 Basic Requirements

- a. Type: New ~~geared or~~ gearless machine with AC motor
- b. Rated load: 4,000 lb. - Retain existing

- c. Rated Speed: 350 fpm - Retain existing
- d. Travel Length: 90 ft. - Retain existing
- e. Number of Stops: Six in line - Retain existing
- f. Number of Hoistway Openings: 6 Front; 1-6 Retain existing
- g. Car Inside Dimensions: 7 ft. 8 in. wide, 5 ft. 3 in. deep and 8 ft. 0 in. high - Retain existing
- h. Car Door Opening: 3 ft. 6 in. wide and 7 ft. 0 in. high - Retain existing
- i. Car Door Types: Single-speed center opening - Retain existing

2.1.1.1 Cab Enclosures and Door Finishes

Provide finishes as indicated below:

- a. Floor; Vinyl composition tile.
- b. Walls; Laminated plastic on particleboard. Provide each cab wall with equally spaced and equally sized wall panels. All wall panel fasteners shall be concealed.
 - (1) Wall trim; Stainless steel.
 - (2) Accessories; Hand rails. Cylindrical 1-1/2-inch diameter on side and rear walls with ends returning to the wall.
- c. Interior face of door(s); Stainless steel.
- d. Ceilings; Prefinished steel panels.
 - (1) Ceiling frame; Stainless steel.
- e. Hoistway Doors and Frame Finishes

Provide finishes on exterior of hoistway as follows:

- (1) Frame; Retain existing finishes and refinish to provide a uniform finish.
- (2) Exterior face of door; Retain existing finishes and refinish to provide a uniform finish.

2.1.2 Freight Elevator 7

- a. Type: Gearless - Retain existing
- b. Rated Load: 20,000 lb. - Retain existing.
- c. Rated Speed: 200 fpm - Retain existing.
- d. Travel Length: 90 ft. - Retain existing.
- e. Number of Stops: Six in-line - Retain existing.

- f. Number of Hoistway Openings: 6 Front; 1-6 - Retain existing
- g. Car Inside Dimensions: 8 ft. 9 in. wide, 19 ft. 7 in. deep; - Retain existing.
- h. Hoistway Door Type & Size: Power operated, vertical bi-parting 8 ft. 9 in. wide and 8 ft. 2 in. high - Retain existing door panels. Provide new door operators, door chains, and related door hardware as specified in this specification.
- i. Car Gate Type: Power operated vertical rising.
- j. Loading Type: Class C - Retain existing.

2.1.2.1 Cab Enclosures and Door Frame Finishes

Provide finishes as indicated below:

- a. Floor; Retain existing.
- b. Walls; Repaint existing cab walls.
- c. Ceiling; Retain existing.
- d. Hoistway Doors and Frame Finishes

Provide finishes on exterior of hoistway as follows:

- (1) Frame; Retain existing.
- (2) Exterior face of door; Retain existing.

2.2 SPECIAL OPERATION AND CONTROL

Provide all special operations and control systems in accordance with ASME A17.1/CSA B44. Provide special operation key switches with 5 pin cylinder locks with removable cores. Provide a key control lock for each operation system.

2.2.1 Firefighters' Service

Provide equipment and signaling devices in accordance with ASME A17.1/CSA B44, Section 2112.27, Rule 211.3. ~~Provide equipment and signaling devices.~~ The designated level for firefighters' key operated switch is the ground floor.

2.2.2 Smoke and Heat Detectors

Smoke and heat detectors are specified in Section 28 31 63.00 20 ANALOG/ADDRESSABLE INTERIOR FIRE ALARM SYSTEM, including conduit and wiring from each detector to elevator machinery space control panel. Provide connections directly to elevator controls which will, when smoke is detected by any smoke detector, actuate Firefighters' Service and send each elevator to the correct floor as required by ASME A17.1/CSA B44. Provide dual-contact smoke detectors located in the elevator lobbies and the elevator machine room. If sprinkler is provided in the hoistway, provide dual-contact smoke detector at top of hoistway. The circuit for elevator controller actuation of Firefighters' Service shall include only these smoke detectors. In lieu of dual-contact smoke detectors, an

addressable fire alarm system with listed smoke detectors can be used in the above stated locations. Ensure that all smoke detectors are mounted on finished ceiling. Smoke detector system must comply with [ASME A17.1/CSA B44](#).

2.2.3 Fire Sprinklers

Provide fire sprinklers in accordance with Section [21 13 13.00 20 WET PIPE SPRINKLER SYSTEM, FIRE PROTECTION](#); providing dual contact flow switch, check valve, and shutoff valve in each sprinkler line immediately outside of each machine room and hoistway in accordance with [ASME A17.1/CSA B44](#).

Provide electrical connection to fire sprinkler system in accordance with Section [26 20 00 INTERIOR DISTRIBUTION SYSTEM](#). For each elevator, provide control wiring connecting the flow switch to the shunt trip equipped circuit breaker within the electrical panel serving the main line disconnect inside the elevator machine room. Upon flow of water, flow switch shall instantaneously send a signal to cause opening of shunt-trip equipped mainline circuit breaker, in compliance with [ASME A17.1/CSA B44](#), Rule 102.2(c)(4), and send a signal to fire alarm control panel to indicate water flow condition. Machine room sprinkler flow switch actuation shall shunt trip all elevators served by the machine room. The flow switch shall have no time delay capability~~Hoistway sprinkler flow switch actuation shall shunt trip all elevators in the hoistway.~~

2.2.4 Top-of-Car Operating Device

~~ASME A17.1/CSA B44, Section 306, Rule 306.2.~~ Provide elevator ~~with, in accordance with ASME A17.1/CSA B44, Paragraph 2.26.1.4.2,~~ an operating device, mounted on or from the car crosshead, that will permit car operation at a speed not exceeding 150 fpm for purposes of adjustment, maintenance, testing, and repair. Include an integral or remote safety device, "UP" and "DOWN" switches or buttons, an emergency stop switch, and inspection switch.

2.2.5 Hoistway Access Switches

~~ASME A17.1/CSA B44, Section 110, rule 111.9.~~ Provide, according to ASME A17.1/CSA B44, Section 3.12, key-operated hoistway access switches that permit limited movement of the car at terminal floors for car door opening and car positioning, operative only when the "INSPECTION" switch in car operating panel is in inspection position. Locate switch 6 feet above floor level, with in 12 inches of hoistway entrance frame of an elevator or with the ferrule exposed when located in entrance frame.

2.2.6 Independent Service

Provide exposed key-operated switch in car operating panel to enable independent service and simultaneously disable in-car signals and landing-call responses. Provide indicator lights that automatically illuminate during independent service.

2.2.7 Elevator Operation

[ASME A17.1/CSA B44](#), Introduction, Section 3, Definitions.

2.2.7.1 Selective Collective Automatic Operation

Provide Selective Collective Automatic Operation. Provide illuminating

push buttons.

2.3 ELEVATOR MACHINE

~~ASME A17.1/CSA B44, Section 208, geared or gearless traction, direct drive machines.~~ Provide elevator machines that are new gearless traction direct-drive machines, according to ASME A17.1/CSA B44, Section 2.24, machine with AC motor and emergency brake device for Passenger Elevator 5. Provide emergency brake device, as well as necessary block up beams to locate deflector sheaves in machine room. Provide necessary interface with existing structure. Provide drive motor with Class F insulation, and rated for continuous duty.

Retain existing machine, adding an emergency brake device for Freight Elevator 7. Drain, flush and provide new gear lubricant. Retrofit new direct drive, digital, closed-loop velocity encoder on hoist machine. Completely disassemble, clean, and inspect all brake components. Replace all worn or damaged parts. Reassemble and test for proper operation.

Provide 2-inch steel angle guards around cable or duct slots through floor slabs or grating. Provide rope and smoke guards for sheaves, cables, and cable slots in machine room.

Paint or finish ferrous surfaces with minimum one coat of rust-inhibiting paint conforming to manufacturer's standard practice.

~~2.3.1 Direct Current Drive Motor~~

~~NEMA MG 1, Part 18, hoisting motor with separately excited direct current (dc) generator. Provide drive motor with Class F insulation, and rated for continuous duty.~~

2.3.1 Governors

Provide new centrifugal-type car governors. Machine room mounted with pull-through jaws and bi-directional shutdown switches. Provide required bracketing and supports for attachment to building structure.

2.4 CONTROL EQUIPMENT

2.4.1 Motor Control Equipment

Provide new motor control equipment in accordance with ASME A17.1/CSA B44, Section 2.26.

2.4.1.1 SCR Control ~~or~~ and Variable Voltage Variable Frequency (VVVF) AC Control

Provide individual isolation transformers and individual choke reactors for each individual hoist motor. Provide filtering to maintain harmonic distortion below IEEE standards as measured at the elevator machine room disconnect. Provide new AC VVVF regenerative motor control for new machine for Passenger Elevator 5, and new DC solid state motor control for existing DC gearless machine that is being retained in place of existing motor generator set for Freight Elevator 7. New AC VVVF regenerative drive for Passenger Elevator 5 shall be regenerative and utilize IGBT converter/inverter and dynamic braking during overhauling condition.

2.4.2 Logic Control

Provide solid-state microprocessor controller to enable programmable control of call allocation, logic functions, door control, speed sensing and car position. Provide a method of reprogramming adjustable parameters of computerized controls. Store all programming in non-volatile memory. The microprocessor control system is acceptable only if hardware and software required to maintain and utilize microprocessor is provided and training is provided to Government Personnel by the equipment manufacturer and supplier.

2.4.2.1 Repair Requirements

For the repair of microprocessor control system, provide maintenance tools, supporting computer software, and software documentation required for complete maintenance of elevator system including diagnostics and adjustments. Tools may be hand-held or built into control system. Provide tools which do not require recharging to maintain their memory or authorization for use. Do not use software which requires periodic reprogramming, or reauthorization. Programs shall be stored in non-volatile memory. Tools and software may be factory programmed to operate only with this project's identification serial number. Provide laptop utilizing serialized software capable of accessing each parameter capable of adjustment. All testing during inspection shall be performed with the provided laptop; no company or personally owned interfaces will be allowed.

2.5 OPERATING PANELS, SIGNAL FIXTURES, AND COMMUNICATIONS CABINETS

2.5.1 Capacity and Data Plates

~~ASME A17.1/CSA B44, Rule 207.3a, Rule 207.3b, and Rule 207.3e.~~ Refer to ASME A17.1/CSA B44, Section 2.27. Attach faceplates with spanner security screws. On car panel, provide stainless steel capacity and data plates, with name of elevator manufacturer.

2.5.2 Car and Hall Buttons

Provide recessed tamper-proof push buttons of minimum 3/4 inch size satin-finish stainless steel with illuminated jewel center. Include approved engraved message and pictorial representation prohibiting use of elevator during fire or other emergency as part of faceplate. Provide communications failure fixture with engraving integral with main lobby hall button fixtures.

2.5.2.1 Hall Station Door Operating Buttons

Provide for Freight Elevator 7. Identical in size and design to hall call buttons, but not illuminated.

2.5.3 Passenger Car-Operating Panel

~~ASME A17.1/CSA B44, Section 211 and 306.~~ Refer to ASME A17.1/CSA B44, Section 211 and 306. Provide each car with new car operating panels replacing existing car operating panels that contain operation controls and communication devices. Provide exposed, flush mounted buttons for the controls that must be passenger accessible. Provide service cabinet or keyed switches for those controls that should not be passenger accessible. Allow maximum 48 inches between car floor and center line of

bottom button. Use engraving and backfilling or photo etching for button and switch designators. Do not use attached signs.

2.5.3.1 Passenger Controls

- a. Illuminated operating call buttons identified to correspond to landings served by elevator car. For two openings at a floor, provide two buttons marked "FRONT" and "REAR" above button location.
- b. "DOOR OPEN" and "DOOR CLOSE" buttons.
- c. Keyed "STOP" switch in accordance with ASME A17.1/CSA B44, ~~rule 210.2(v)~~ Section 2.27 (2.27.3.3).
- d. "ALARM" button in compliance with UFAS, ADA, and ASME A17.1/CSA B44, ~~rule 211.1, Paragraphs 5.1.21.1, 5.7.21, and 2.27.1~~. Alarm button shall be red with engraved legend "ALARM." Alarm button shall illuminate when pushed. Locate "ALARM" button at panel bottom.
- ~~ed.~~ "FIRE DEPARTMENT" key switch, with "OFF-HOLD-ON" positions, in that order with key to be removable in all positions. Provide fire sign or jewel and audible signal device, in accordance with ASME A17.1/CSA B44, Figure ~~211.3a~~ 2.27.3.1.6(h). Both visual and audible signals are activated when Phase I key switch in hall is activated or when smoke detector activates return of elevator(s) to main fire response floor. Visual and audible signal shall remain activated until car has reached designated or alternate fire response floor. Upon arrival at fire response floor visual signal remains illuminated and audible signal becomes silent.
- ~~fe.~~ Emergency two-way communication. Provide momentary pressure, single illuminating pushbutton operated communication device that complies with ASME A17.1/CSA B44, UFAS, and the Americans with Disabilities Act.

2.5.3.2 Service Controls

- a. Inspection switch that transfers car control to top-of-car inspection operating controls and prevents car operation from in-car control panel.
- b. Independent service switch.
- c. Two car light switches, one for light in car and one for lights on top and bottom of car frame.
- d. Fan switch, two-speed.
- ~~e. Infra-red curtain unit cutout switch.~~
- ~~fe.~~ 120-volt ac 60 Hz single-phase duplex electrical outlet of ground-fault-circuit-interrupt (GFCI) design.
- ~~gf.~~ Device for communication between car and elevator machine room.

2.5.3.3 Certificate Window

Provide a minimum 4 inch high by 6 inch wide certificate window in car operating panel for elevator inspection certificate.

2.5.4 Freight Car-Operating Panel

~~ASME A17.1/CSA B44, Section 211 and 306.~~ ASME A17.1/CSA B44, Section 2.27. Provide 1/8 inch thick stainless steel face plate with edges relieved. Provide each car with one car operating panel that contains operation controls and communication devices. Provide exposed, flush mounted buttons for the controls that must be passenger accessible. Provide service cabinet or keyed switches for those controls that should not be passenger accessible. Allow maximum 48 inches between car floor and centerline of bottom button. Use engraving and backfilling or photo etching for button and switch designations. Do not use attached signs.

2.5.4.1 Passenger Controls

- a. Illuminated operating call buttons identified to correspond to landings served by elevator car. For two openings at a floor, provide two buttons, marked "FRONT" and "REAR" above the button location.
- b. Manual "STOP" switch in accordance with ASME A17.1/CSA B44, Rule 210.2-(e)Section 2.2.7, Paragraph 2.27.3.3.7.-
- c. "ALARM" button in compliance with UFAS, ADA, and ASME A17.1/CSA B44 Alarm button shall be red with engraved legend "ALARM." Alarm button shall illuminate when pushed. Locate "ALARM" button at panel bottom.
- d. "FIRE DEPARTMENT" key switch, with "OFF-HOLD-ON" positions, in that order with key removable in all positions. Provide fire sign or jewel and audible signal device, ~~in accordance with ASME A17.1/CSA B44 Figure 211.3a,~~ in accordance with ASME A17.1/CSA B44 Figure 2.27.3.3.7.. Both visual and audible signals are activated when Phase I key switch in hall is activated or when smoke detector activates return of elevator(s) to main fire response floor. Visual and audible signal shall remain activated until car has reached designated or alternate fire response floor. Upon arrival at fire response floor visual signal remains illuminated and audible signal becomes silent.
- e. Emergency two-way communication. Provide momentary pressure, single illuminating pushbutton operated communication device that complies with ASME A17.1/CSA B44, UFAS, and the Americans with Disabilities Act.

2.5.4.2 Service Controls

- a. Inspection switch that transfers car control to top-of-car inspection operating controls and prevents car operation from in-car control panel.
- b. Independent service switch.
- c. Two car light switches, one for light in car and one for lights on top and bottom of car frame.
- d. Fan switch, two-speed.
- e. Infra-red curtain unit cutout switch.
- f. 120-volt ac 60 Hz single-phase duplex electrical outlet of ground-fault-circuit-interrupt (GFCI) design.
- g. Communication device between car and elevator machine room.

h. "DOOR OPEN" and "DOOR CLOSE" buttons.

2.5.4.3 Certificate Window

Provide a minimum 4 inches high by 6 inches wide, certificate window in car operating panel for elevator inspection certificate.

2.5.5 Switches and Devices

Provide elevator manufacturer's standard grade for switches and devices on car operating panel. Legibly and indelibly identify each device and its operating positions. Locate car dispatching buttons in identical positions in car operating panels for corresponding floors.

2.5.6 In-Car Position and Direction Indicator and Signal

In-car direction indicator shall be included in the in-car position indicator fixture.

2.5.6.1 In-Car Position Indicator and Signal

Provide horizontal electrical or electronic digital position indicator located minimum of 84 inches above car floor. Arrange indicator to show floor position of car in hoistway and its traveling direction. Indicate position by illumination of numeral or letter corresponding to landing at which car is passing or stopping. Provide audible signal to alert passenger that elevator is passing or stopping at a floor. Provide audible signals exceeding ambient noise level by at least 20 decibels with frequency not higher than 1500 Hz.

2.5.7 Landing Position and Direction Indicator and Signal

Provide a single fixture containing the landing position and direction indicators.

2.5.7.1 Landing Position Indicator and Signal

Provide an electrical or electronic digital position indicator similar to the car position indicator. Arrange position indicator in wall horizontally above the door frame or vertically at the side of the door frame. Indicators to show floor position of car in hoistway. Indicate position by illumination of numeral or letter corresponding to landing at which car is passing or stopping.

2.5.7.2 Landing Direction Indicator and Signal

Provide landing direction indicator with visual and audible signal devices integral with the landing position indicator at each floor for Passenger Elevator 5. Provide single direction indicator at terminal floors; "UP" and "DOWN" direction indicator at intermediate floors. Provide equilateral triangles not less than 2 1/2 inches in size, green for upward direction and red for downward direction. Provide electronic audible device that sounds once for upward direction and twice for downward direction. Provide audible signals exceeding ambient noise level by at least 20 decibels with frequency not higher than 1500 Hz.

2.6 HOISTWAY AND CAR EQUIPMENT

~~ASME A17.1/CSA B44, Parts I and II.~~

2.6.1 Car and Counterweight Guide Rails and Fastenings

Retain existing car and counterweight rails.

2.6.2 Car and Counterweight Buffers

Retain existing car and counterweight buffers. __Drain, flush, refill and test.

2.6.3 Pit Equipment

Retain existing. Provide new governor tail sheave assembly mounted in the pits as part of the new governor assembly.

2.6.3.1 Pit "STOP" Switch

Provide push/pull type pit "STOP" switch for stopping elevator motor, independent of regular operating device. Locate switch on same side of hoistway as ladder.

2.6.3.2 Ladder

Section 05 50 13 MISCELLANEOUS METAL FABRICATIONS, Section 05 52 00 METAL RAILINGS, Section 05 51 00 METAL STAIRS, galvanized steel. Provide ladder in accordance with 29 CFR 1910.27 with maximum distance between rung and wall based on existing conditions. Locate ladder on hoistway side wall closest to hoistway door opening. Minimum distance shall be 7 inches from center line of rung to wall if space permits.

2.6.3.3 Lighting of Pits

~~ASME A17.1/CSA B44, Rule 106e.~~ Refer to ASME A17.1/CSA B44, Section 2.2.5. Locate light not less than 6 feet above pit floor. Locate switch on same side of hoistway as ladder. Provide GFCI duplex receptacle in each pit.

2.6.4 Terminal Stopping Devices

~~ASME A17.1/CSA B44, Section 209.~~ Provide new terminal stopping devices in accordance with ASME A17.1/CSA B44, Rule 2.26.2.11.

2.6.5 Wiring and Traveling Cables

NFPA 70, Article 620 and Section 26 20 00 INTERIOR DISTRIBUTION SYSTEM. Suspend traveling cables by means of self-tightening webbed devices. Provide new wiring and traveling cables. Provide copper conductors and connections throughout with individual wires coded and connections on identified studs or terminal blocks. Use no splices or similar connections in wiring except at terminal blocks, control compartments, or junction boxes. Provide 10 percent spare conductors throughout. Run spare wires from car connection points to individual elevator controllers in the machine room. Tag spares in machine room. Provide flame and moisture-resistant outer cover for traveling cables. Prevent traveling cable from rubbing or chafing against hoistway or equipment within hoistway. Connect fire alarm initiating devices and emergency two-way

communication system auxiliary wiring in each car controller in machine room.

2.6.6 Emergency Signaling Devices

Provide an audible signaling device, operable from the Car Operating Panel button marked "ALARM". The audible signaling device shall be mounted in the hoistway and shall conform to the requirements of ASME A17.1/CSA B44, Rule 211.1(a). In addition, for freight elevators, operation of the EMERGENCY STOP button shall sound the audible signaling device.

2.7 PASSENGER CAR AND HOISTWAY DOOR ACCESSORIES

~~ASME A17.1/CSA B44, Sections 111, 112, and 204. Refer to~~
ASME A17.1/CSA B44, Sections 3.12, 3.13 and 3.14. Provide infra-red curtain unit. Provide high-speed electric operator, safety interlocks for car and hoistway doors, and electric safety contact to prevent car operation unless doors are closed. Provide new door interlocks, operable without retiring cam. Paint interlock box flat black.

2.7.1 Infrared Curtain Unit

Provide Infra-red Curtain Unit (ICU) with multiple infra-red beams that protect to the full height of the door opening. Minimum coverage shall extend from 2 inches off the floor to 70 inches above floor level. ~~Door operation must meet the requirements of ASME A17.1/CSA B44, Rule 211.3a(5) and 112.5.~~

2.8 PASSENGER ELEVATOR GUIDES, PLATFORM, AND ENCLOSURE

2.8.1 Roller Guides

~~ASME A17.1/CSA B44, Section 200. Refer to ASME A17.1/CSA B44, Paragraph 8.7.2.22.~~ Provide roller guide assemblies in adjustable mountings on each side of car and counterweight frames in accurate alignment at top and bottom of frames.

2.8.2 Car Frame and Platform

Retain existing. Provide new 48-inch extended toe guard.

2.8.3 Car Enclosure, Car Door, and Car Illumination

Retain existing.

2.8.3.1 Car Shell Return Panels, Entrance Columns, Cove Base, and Transom

Retain existing.

2.8.3.2 Car Top

Retain existing. Install car top guard rails on sides and rear of each car top. Rails should include a bottom, middle and top section in accordance with ASME A17.1/CSA B44, Rule 2.10.2. Install electrical device on car top emergency exits that will prevent operation of the elevator car if the exit cover is open more than 2 inches in accordance with ASME A17.1/CSA B44, Rule 2.14.1.5.1(f).

2.8.3.3 Car Door

Provide 16 gauge minimum stainless steel, sandwich construction without binder angles. Provide a minimum of 2 door guide assemblies per door panel, one guide at leading and one at trailing door edge with guides in the sill groove their entire length of travel.

2.8.3.4 Car Entrance Sill

Retain existing.

2.9 PASSENGER ELEVATOR HOISTWAY DOORS AND ENTRANCES

2.9.1 Hoistway Entrance Frames

Retain existing.

2.9.2 Hoistway Entrance Sills

Retain existing.

2.9.3 Hoistway Entrance Doors

Retain existing.

2.9.4 Entrance Fascias and Dust Covers

Retain existing.

2.9.5 Hoistway Ventilation

Provide hoistway ventilation directly to outside air by fixed louver through side wall of hoistway at highest possible point in hoistway. Net size of louver to be at least 3 1/2 percent of hoistway cross section.

2.10 FREIGHT ELEVATOR GUIDES, PLATFORM, AND ENCLOSURE

2.10.1 Roller Guides

~~ASME A17.1/CSA B44, Section 200.~~ Provide roller guide assemblies in adjustable mountings on each side of car and counterweight frames in accurate alignment to top and bottom of frames.

2.10.2 Car Frame and Platform

Retain existing.

2.10.3 Car Enclosure

Retain existing.

2.11 FREIGHT ELEVATOR HOISTWAY DOORS AND ENTRANCES

2.11.1 Door Panel

Retain existing.

2.11.2 Door Operation

~~Semi-selective~~ Full-selective. Provide new door operators, door chains controls, wiring, and necessary interface to install new equipment on existing door panels.

2.11.3 Door Guide Rails

Retain existing.

2.11.4 Door Interlocks

~~ASME A17.1/CSA B44, Rule 111.3 and 111.6.~~ Provide new door interlocks, operable without retiring cam. Paint interlock box flat black.

2.12 HANDICAPPED AND MEDICAL SERVICES ACCESS

Refer to 36 CFR 1191, Sections 4.10 for Elevator, 4.30 for Signage, ~~and~~ 4.31 for Telephones, and most current accessibility standards.

2.13 EMERGENCY BATTERY RESCUE FEATURE

Battery Rescue Feature: Upon loss of normal power, provide controls to automatically lower or raise the cars to the nearest landing based on loading conditions. Upon arrival at the landing, the elevator doors shall open automatically and remain open until regular door time has expired. The elevator shall then become deactivated. The standby power source shall be provided via 12-volt D.C. battery units installed in machine room, including solid-state charger and testing means mounted in a common metal container. Battery to be rechargeable lead acid or nickel cadmium with a ten-year life expectancy. Upon restoration of normal power, the elevator shall automatically resume normal operation.

2.14 PROVISIONS FOR EARTHQUAKE PROTECTION

~~ASME A17.1/CSA B44, Part XXIV~~ Section 8.4. This facility is located in a seismic zone 3, comply with all ASME A17.1/CSA B44, Part XXIV Section 8.4 requirements. Provide dual counterweight derailment sensing wires vertically each side of counterweight the entire height of travel. The counterweight frame shall be equipped with a minimum of four derailment rings. A dual axis seismic switch shall be provided in the machine room that will activate at no less than 0.15 times gravity in the vertical or horizontal directions. Provide position restraints on new guide assemblies. Counterweight retainer plates must be bolted.

PART 3 EXECUTION

3.1 INSTALLATION

Install in accordance with manufacturer's instructions, ASME A17.1/CSA B44, 36 CFR 1191, and NFPA 70.

3.1.1 Traveling Cables

Do not allow abrupt bending of traveling cables.

3.1.2 Structural Members

Do not cut or alter. Restore any damaged or defaced work to original

condition.

3.1.3 Safety Guards

Selector cables or tapes exposed to possibility of accidental contact in machine room shall be completely enclosed with 16 gage sheet metal or expanded metal guards, both horizontally and vertically. Exposed gears, sprockets, tape or rope sheaves, floor controllers, or signal machines, and their driving ropes, chains or tapes, and selector drums shall be guarded from accidental contact in accordance with ASME A17.1/CSA B44.

3.1.4 Miscellaneous Requirements

Include recesses, cutouts, slots, holes, patching, grouting, and refinishing to accommodate elevator installation. Use core drilling to drill all new holes in concrete. Finish work to be straight, level, and plumb. During installation, protect machinery and equipment from dirt, water, or mechanical damage. At completion, clean all work, and spot paint.

3.1.5 Firefighters' Service

Firefighters' service shall be complete including installation and wiring of all smoke detectors in accordance with ASME A17.1/CSA B44, Rule ~~211.3b~~ **2.27.3.2**. Coordinate smoke detector installation for Firefighters' Service.

3.2 FIELD QUALITY CONTROL

After completing elevators system installation, notify Contracting Officer that elevator system is ready for final inspection and acceptance test. Contracting Officer will obtain services of Naval Facilities Engineering Command certified elevator inspector.

Contractor shall perform all required tests and demonstrate proper operation of each elevator system and prove that each system complies with contract requirements and ASME A17.1/CSA B44, and the applicable requirements of **Section 8.3, "Engineering Tests, Type Tests, and Certification"** ~~Part XI, "Engineering and Type Tests"~~. Inspection procedures in ASME A17.2 form a part of this inspection and acceptance testing. All testing and inspections shall be conducted in the presence of the elevator inspector. Demonstrate the proper operation of all equipment at various date settings, selected by the elevator inspector, ranging from the date of contract award through 1 January 2099.

Inspector shall complete, sign and post form NAVFACENCOM 9-11014/23 (Rev. 7-88), Elevator Inspection Certificate, after successful completion of inspection and testing.

3.2.1 Testing Materials and Instruments

Furnish testing materials and instruments required for final inspection. Include calibrated test weights, tachometer, 600-volt megohm meter, volt meter and ammeter, three Celsius calibrated thermometers, door pressure gage, spirit level, stop watch, dynamometer, and 100 foot tape measure.

3.2.2 Field Tests

3.2.2.1 Endurance Tests

Test each elevator for a period of one hour continuous run, with specified rated load in car. Restart the one hour test period from beginning, following any shutdown or failure. During test run, stop car at each floor in both directions of travel for standing period of 10 seconds per floor. The requirements for Rated Speed, Leveling, Temperature Rise and Motor Amperes Test specified herein are to be met throughout the duration of the Endurance Test.

3.2.2.2 Speed Tests

Determine actual speed of each elevator in both directions of travel with rated load and with no load in elevator car. Make Speed tests before and immediately after Endurance test. Determine speed by tachometer reading, excluding accelerating and slow-down zones per ASME A17.2. Minimum acceptable elevator speed is the Rated speed specified. Maximum acceptable elevator speed is 110 percent of Rated speed.

3.2.2.3 Leveling Tests

Test elevator car leveling devices for landing accuracy of plus or minus 1/4 inch at each floor with no load in car, symmetrical load in car, and with rated load in car in both directions of travel. Determine accuracy of floor landing both before and immediately after endurance tests. ~~For Class C2 landing, freight elevators shall comply with ASME A17.1/CSA B44, Rules 207.2b (3)(a), (b) and (c).~~ The maximum load on car platform during loading or unloading shall not exceed 150 percent of rated load.

3.2.2.4 Insulation Resistance Tests

Perform tests to ensure elevator wiring systems are free from short circuits and grounds. Minimum acceptable insulation resistance for electrical conductors is one megohm between each conductor and ground and between each conductor and other conductors. Prior to megohm meter test, make provisions to prevent damage to electronic devices.

3.2.2.5 Brake Test

Conduct brake test with 125 percent of rated load in elevator. Verify that brakes stop and hold elevator with 125 percent of rated load.

3.2.2.6 Temperature Rise Tests

Determine temperature rise of elevator hoisting motor, motor-generator, exciter, and booster during full-load test run for one hour minimum. Under these conditions, maximum acceptable temperature rise shall not exceed acceptable temperature rise indicated on manufacturer's data plate. Start test only when equipment is within 9 degrees F of ambient temperature.

3.2.2.7 Buffer Tests

Test buffers for car and counterweight as outlined in ASME A17.1/CSA B44, Rule ~~1100.58.3.2~~.

~~3.2.2.8 Temperature Rise Tests~~

~~Determine temperature rise of elevator hoisting motor, motor generator, exciter, and booster during full load test run for one hour minimum. Under these conditions, maximum acceptable temperature rise shall not exceed acceptable temperature rise indicated on manufacturer's data plate. Start test only when equipment is within 5 degrees C of ambient temperature.~~

3.2.2.8 Balance Tests

Perform electrical and mechanical balance tests of car and counterweight.

3.2.2.9 Motor Ampere Tests

Measure and record motor amperage when motor is running and elevator is lifting at rated load and speed. Measure and record motor amperage at beginning and end of Endurance test.

3.3 MAINTENANCE SERVICE TRAINING

Provide qualified representative of elevator manufacturer to instruct ~~Government~~contracted elevator service personnel in care, adjustment, and maintenance of elevator equipment for a period of not less than 5 working days immediately following acceptance of elevator system. Training shall include familiarization and use of any supplied software.

-- End of Section --

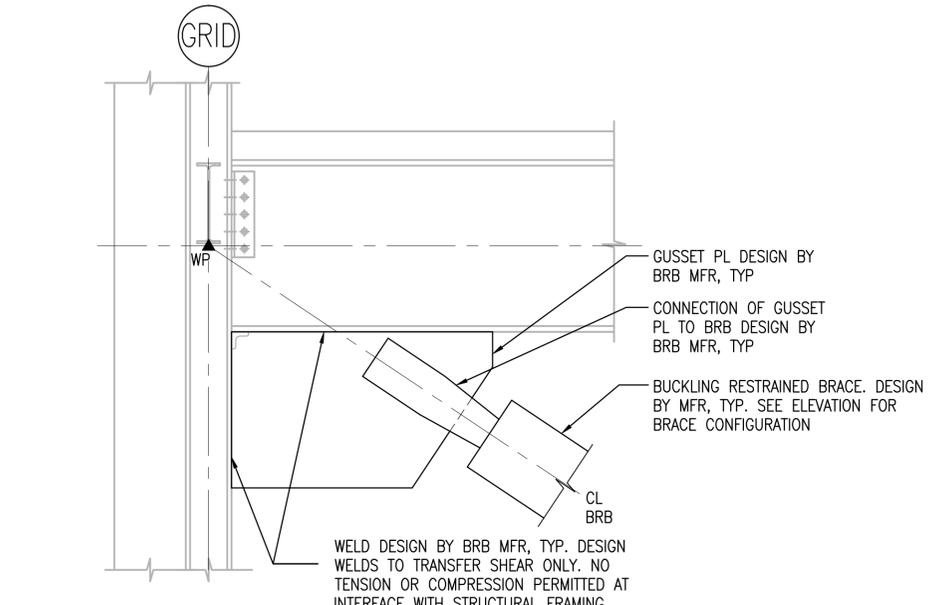
BUCKLING RESTRAINED BRACE (BRB) SCHEDULE

BRACE DESIGNATION	AREA A_{sc} (IN ²)	YIELD STRENGTH ϕP_n (k)	MAX BRACE WIDTH (IN)	MAX BRACE DEPTH (IN)	MIN L_{wp-wp} (IN)	MAX L_{wp-wp} (IN)	MAX KF	MIN KF
BRB 0250	2.50	97.5	10	10	200	220	1.69	1.53
					290	330	1.43	1.26
					380	420	1.31	1.18
BRB 0325	3.25	126.75	10	10	210	230	1.65	1.49
					230	280	1.53	1.37
					290	310	1.44	1.30
BRB 0400	4.00	156.0	16 DIAMETER	16 DIAMETER	380	410	1.31	1.19
					530	560	1.22	1.10
					840	870	1.17	1.05
BRB 0450	4.50	175.5	10	10	40	70	2.55	2.31
					180	210	1.86	1.68
					210	240	1.69	1.53
					250	280	1.53	1.38
					280	320	1.46	1.30
					320	390	1.41	1.22
BRB 0600	6.00	234.0	12	12	390	440	1.32	1.18
					130	160	2.56	2.31
					160	190	1.99	1.80
					220	250	1.63	1.48
					250	280	1.54	1.38
					280	310	1.47	1.31
BRB 0750	7.50	292.5	12	12	310	350	1.40	1.21
					410	440	1.31	1.18
					250	280	1.55	1.38
					280	330	1.52	1.31
					410	440	1.31	1.18

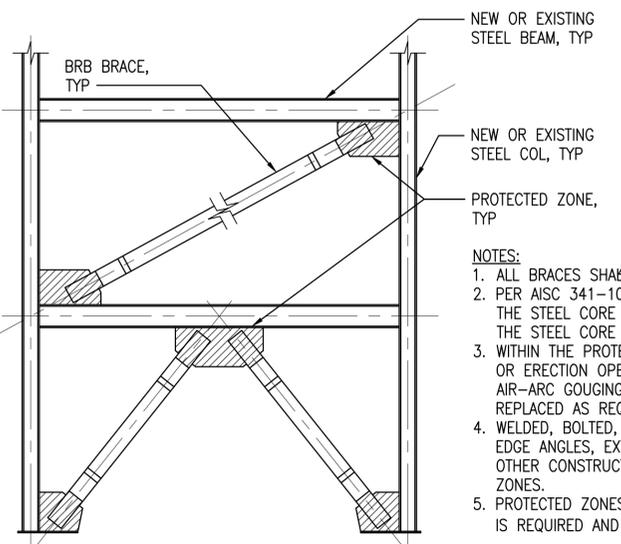
- NOTES:**
- BUCKLING RESTRAINED BRACES ARE TO BE TESTED PER THE PROVISIONS OF AISC 341-10. SUPPLIER TO SUBMIT PROOF OF EACH BRACE'S COMPLIANCE WITH THE QUALIFIED LOADS AND STRAIN RANGES.
 - FSYC IS THE ACTUAL YIELD STRESS OF THE STEEL CORE AS DETERMINED BY A COUPON TEST. $38 \text{ KSI} \leq \text{FSYC} \leq 46 \text{ KSI}$.
 - MAXIMUM β_w NOT TO EXCEED 1.40. MAXIMUM w NOT TO EXCEED 1.20. WHERE β & w ARE DEFINED BY AISC SEISMIC PROVISIONS.
 - BRACE STIFFNESS K_{eff} TO BE $(K_f \times A_{sc} \times E) / (L_{wp-wp})$, WHERE THE VALUES A_{sc} AND K_f ARE TAKEN FROM THE TABLE. THE PERMITTED RANGE OF K_f IS DEPENDENT ON L_{wp-wp} WHICH IS THE WORKPOINT - WORKPOINT LENGTH OF THE BRACE AS DEFINED BY THE DRAWINGS. K_{eff} IS TO BE DETERMINED INCORPORATING THE STIFFNESS OF THE BEAMS, COLUMNS, AND GUSSET PLATES.
 - ALL BRACES SHALL HAVE PROTECTED ZONES AS DEFINED BY M/S-541.
 - GUSSET PL, BRB CONNECTION TO GUSSET PL, AND GUSSET PL CONNECTION TO STEEL FRAMING TO BE DESIGNED BY BRB MANUFACTURER. THESE CONNECTIONS MAY BE WELDED, BOLTED, OR PIN CONNECTED.
 - BRB 0400 MUST USE A CIRCULAR CASING.
 - SEE H/S-541 FOR EXTENTS OF DESIGN RESPONSIBILITY OF BRB SUPPLIER.

BUCKLING RESTRAINED BRACE SCHEDULE
NOT TO SCALE

S-211 - S-225, S-231 - S-260



TYPICAL BRB DESIGN RESPONSIBILITY
NOT TO SCALE



TYPICAL BRB PROTECTED ZONE DETAIL
NOT TO SCALE

- NOTES:**
- ALL BRACES SHALL HAVE PROTECTED ZONES AS SHOWN IN THIS DETAIL.
 - PER AISC 341-10, SECTION 16.6 THE PROTECTED ZONE SHALL INCLUDE THE STEEL CORE OF BRACING MEMBERS AND ELEMENTS THAT CONNECT THE STEEL CORE TO BEAMS AND COLUMNS.
 - WITHIN THE PROTECTED ZONE, DISCONTINUITIES CREATED BY FABRICATION OR ERECTION OPERATIONS, SUCH AS TACK WELDS, ERECTION AIDS, AIR-ARC GOUGING AND THERMAL CUTTING SHALL BE REPAIRED OR REPLACED AS REQUIRED BY THE CONTRACTING OFFICER.
 - WELDED, BOLTED, SCREWED OR SHOT-IN ATTACHMENTS FOR PERIMETER EDGE ANGLES, EXTERIOR FACADES, PARTITIONS, DUCT WORK, PIPING OR OTHER CONSTRUCTION SHALL NOT BE PLACED WITHIN THE PROTECTED ZONES.
 - PROTECTED ZONES SHALL BE PAINTED YELLOW EXCEPT WHERE WELDING IS REQUIRED AND STENCILED WITH "PROTECTED ZONE" IN RED.

S-211 - S-225, S-231 - S-260

DATE	4/2015	JMH	JMH	APPR
DESCRIPTION	AMENDMENT 0004			
DATE	3/2015	JMH	JMH	APPR
DESCRIPTION	AMENDMENT 0003			



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APPROVED	
FOR COMMANDER NAFAC	
ACTIVITY	
SATISFACTORY TO	DATE
DESIGNED BY	CHKD BY
BRANCH MANAGER	
CHIEF ENG/ARCH	
FIRE PROTECTION	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL STATION - SUGARDALE, WASHINGTON
BREMERTON, WA
NAVAL BASE KITSAP - PSNS & INF
**SPECIAL PROJECT RM 09-1471
REPAIR INSIDE MACHINE SHOP, BUILDING 431**
BRB DETAILS AND BRB NOTES

SCALE:	AS NOTED
PROJECT NO.:	16027814/78461
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO./PNO. NO.	
SHEET	174 OF 318

S-541
DRAWFORM REVISION: 10 MARCH 2009